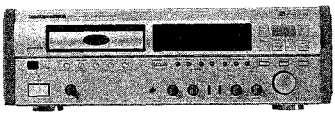
Service Manual

74 DD-92/01G/02G/05G/07G
74 DD-82/01B/02B/05B/07B

Digital compact casette recorder



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marantz®

model DD-92/DD-82

First issue : 1992
4822 725 50979

PCS 67 454

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ company has created the ultimate in stereo sound.
Only **original MARANTZ parts** can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ equipment are generally available to our National Marantz Subsidiary or Agent.

MARANTZ INTERNATIONAL
Vestdijk 9
5600 MD Eindhoven
The Netherlands
Phone: +31/40.758290
Telefax: +31/40.75.82.99
Telex: 35000 PHTC NL routing IND NLMTFAT

ORDERING PARTS:

Parts can be ordered either by mail or by telex. In both cases, correct part number has to be specified.
The following information must be supplied to eliminate delays in processing your order:

1. Complete address
2. Complete part numbers and quantities required
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature: any order form or telex must be signed otherwise such part order will be considered as null and void.

PARTS ORDERING

Parts may be ordered or advice can be given at the following addresses:

AUSTRIA
MARANTZ
Hietzinger Kai 137a
1130 Wien

BELGIUM
MARANTZ EUROPE B.V.
Div. Benelux
P.O. Box 218
Building HCM9
5600 MD Eindhoven
The Netherlands
Fax. 11 01 11

CHILE
MARANTZ
DIVISION OF PHILIPS S.A.
AV. Santa Maria, 0760
Casilla 2687
Santiago
Telex: 240.239

DENMARK
MARANTZ
Horsvinget 5
2630 Taastrup

NORWAY
MARANTZ
Postboks 7034
Asalien
3007 Drammen

FRANCE
MARANTZ FRANCE
4 Rue Bernard Palissy
92600 Asnieres
France
Telex: 611651

GERMANY
MARANTZ GERMANY GmbH
Alexanderstraße 1
2000 Hamburg
Germany

THE NETHERLANDS
MARANTZ EUROPE B.V.
Div. Benelux
P.O. Box 218
Building HCM9
5600 MD Eindhoven
The Netherlands
Fax. 040 - 75 52 86

SWEDEN
MARANTZ
Box 1324
171 25 Solna

FINLAND
MARANTZ
Kuortanegatan 1
00520 Helsingfors 52

GREAT BRITAIN
MARANTZ HIFI U.K. Ltd.
Kingsbridge House
Padbury oaks
575-583 Bath Road
Long ford
Middlesex UB7 OEH
Faxnr.: 0753 680 428

GREECE
SHERTON ELECTRONICS S.A.
P.O.Box 21025
Hippocratus Street 168
Athens 11471
Greece
Telex: 216.795

JAPAN
MARANTZ JAPAN, Inc.
35-1, 7-chome, Sagamiono
Sagamihara-shi, Kanagawa
Japan

KUWAIT
AL ALAMIAHA ELECTRONICS
Ussama Building
Fahd al Salem Street
P.O.Box 23781
Safat-Kuwait
Telex: 22894

ITALY
MARANTZ ITALIANA S.P.A.
Via Chiese, 74
20126 Milano
Italy

SAUDI ARABIA
AL ALAMIAH ELECTRONICS
P.O.Box 5954
University Street
Riyadh 11432
Saudi Arabia
Telex: 401530

SOUTH AFRICA
MARANTZ
DIVISION OF PHILIPS S.A.
Main Road Martindale
P.O.Box 58088
Newville 21114
South Africa

SPAIN
Euroservice S.A.
Bernardo obrégón, 26
28012 Madrid
Faxnr.: 3412 306 198

SWITZERLAND
MARANTZ
Technischer Service
Duenstraße 3
3186 Düdingen
Switzerland

TURKEY
DOGRUOL Ltd.
I.M.C
6 Blok N°6310
Unkapani
Istanbul
Turkey
Telex: 22065

MALTA
CACHIA & GALEA
Republic Street, 680
Valetta
Telex: 1682

PORTUGAL
MARANTZ
Divisao Philips S.A. service
Outurela-carnaxide
2795 LinDA-A-VELHA
Telex: 43906

All of the above locations are fully equipped to take care of your total service needs. Because various countries have differing configuration requirements, it is necessary that you contact the service facility in your particular country. In the event that there is no service location listed for your country, please, contact the nearest facility for the necessary assistance.

In case of difficaulties, do not hesidate to contact the Technical Department at above mentioned address.

TECHNICAL SPECIFICATIONS

D/A Conversion	Bitstream DAC-7 Differential Mode 1 Bit Pulse Density Modulation with 20 bit 8 times oversampling digital filter
A/D Conversion	Bitstream Σ – Δ Sigma-Delta Modulation 64 times oversampling with 18 bit resolution
Frequency Response:	
Digital	
48 kHz sampling	10 Hz - 22 kHz ± 0.2 dB
44.1kHz sampling	10 Hz - 20 kHz ± 0.2 dB
32 kHz sampling	10 Hz - 14.5 kHz ± 0.2 dB
Analog (Type II tape)	20 Hz - 18 kHz ± 3 dB
S/N ratio (A-weighted)	
Digital (playback)	>103 dB (DD-92)
	>101 dB (DD-82)
Analog (no NR, Type II)	>59 dB
Dolby B improvement	up to 10 dB
Dolby C improvement	up to 20 dB
Dynamic range	
Digital (playback)	>100 dB

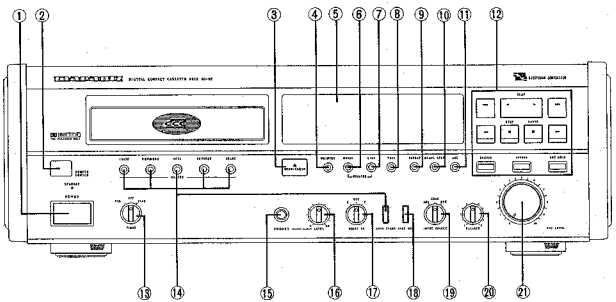
Total Harmonic Distortion	
Digital (playback)	<.003% at 1 kHz (DD-92)
	<.0035% at 1 kHz (DD-82)
Channel Separation	
Digital (playback)	100 dB at 1 kHz
Wow and Flutter	
Digital	below the limit of measurement
Analog (WRMS)	.015%
Output Level and impedance	
Analog Fixed	2 V / 1.5 kΩ
Analog Variable	0 ~ 2 V / 1.5 kΩ
Digital co-axial	.5 V p-p / 75 Ω
Digital optical	Toslink-19 dBm
Power supply	
/01 version	110-120/220-240V AC 50/60 Hz
/02 version	230V AC 50/60 Hz
/05/07 version	240V AC 50/60 Hz
U version	120V AC 60 Hz 35W
Dimensions	
Width	456 mm, 17 7/8" (including side panels)(DD-92)
	426 mm, 16 1/2" (DD-82)
Height	132 mm, 5 3/4"
Depth	344 mm, 15 1/4"
Weight	13 kg, 26 lbs (DD-92)
	8.2 kg, 17 lbs (DD-82)

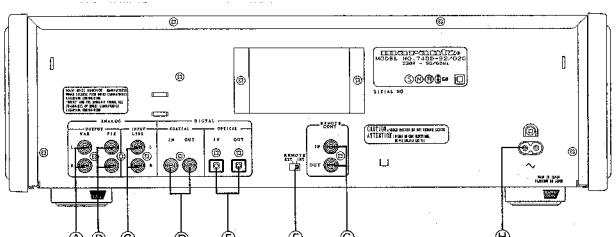
Carbon film 0.125 W or 0.2 W	70°C	5%	
Carbon film 0.25 W or 0.33 W	70°C	5%	
Metal film 0.25 W or 0.33 W	70°C	5%	
Carbon film 0.5 W	70°C	5%	
Carbon film 0.67 W	70°C	5%	
Carbon film 1 W or 1.15 W	70°C	5%	
Ⓒ Chip component			

Ceramic plate Tuning ⩽ 120 pF NP.0	2%	
Others	–20/+80%	
Polyester flat foil	10%	
Metalized polyester flat film	10%	
Polyester flat foil small size (Mylar)	10%	
Polysterene film/foil	1%	
Tubular ceramic		
Miniature single		
Subminiature tantalum	± 20%	

*a	= 2.5 V
b	= 3.15 V or 4 V
c	= 6.3 V
d	= 10 V
e	= 16 V
f	= 25 V
g	= 40 V
h	= 63 V
i	= 100 V
j	= 125 V
m	= 150 V
n	= 160 V
q	= 200 V
r	= 250 V
s	= 300 V
t	= 350 V
u	= 400 V
v	= 500 V
w	= 630 V
x	= 1000 V
A	= 1.6 V
B	= 6 V
C	= 12 V
D	= 15 V
E	= 20 V
F	= 35 V
G	= 50 V
H	= 75 V
I	= 80 V

CONNECTIONS AND CONTROLS





① Power (standby) switch	S851	⑮ Phones	JH02
② Remote sensor	QD02	⑯ Phones level control	RH01
③ Open/close switch	SD17	⑰ Dolby NR switch	SD32
④ Monitor switch	SD25	⑱ Sync rec switch	SD22
⑤ Display	VD01	⑲ Input select switch	SD33
⑥ Counter reset switch	SD19	⑳ Rec balance control	RV02
⑦ Time switch	SD21	㉑ Rec level control	RV01
⑧ Text switch	SD20	Ⓐ Variable out	J741
⑨ Repeat switch	SD01	Ⓑ Fixed out	J740
⑩ Blank skip switch	SD27	Ⓒ Line in	J742
⑪ AMS switch	SD26	Ⓓ Digital coaxial in/out	JA03
⑫ Recording/playback control switch	SD03~06, 08, 09, SD15, 16, 24, 28, 29	Ⓔ Optical in/out	JA01, 02
		Ⓕ Remote ext/int switch	SR01
⑬ Timer play/off/rec switch	SD31	Ⓖ Remote cont. d-bus	JR01
⑭ Marker control switch	SD10~14, 23	Ⓗ Main socket	J093

SERVICE HINTS

(GB) WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

ESD

(NL) WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

(F) ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

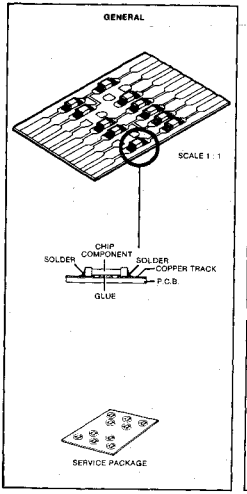
(D) WARNUNG

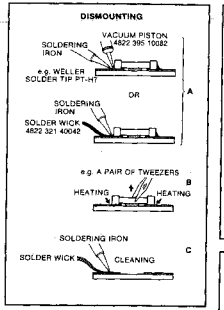
Alle ICs und viele andere Halbleiter sind empfindlich gegen elektrostatische Entladungen (ESD).
Unsorgfältige Behandlung bei der Reparatur kann die Lebensdauer drastisch vermindern. Sorgen sie dafür, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand mit dem Massepotential des Gerätes verbunden sind. halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem Potential.

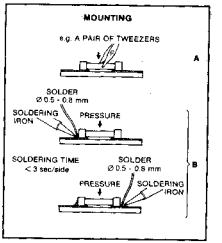
(I) AVVERTIMENTO

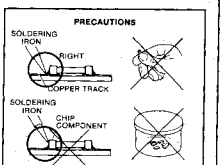
Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

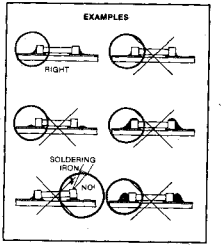
HANDLING CHIP COMPONENTS









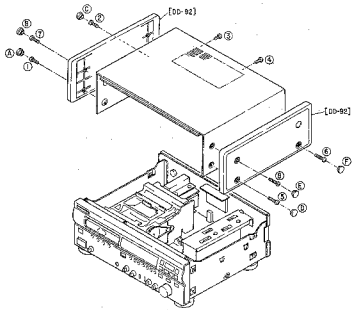


DISASSEMBLY

REMOVING THE TOP COVER

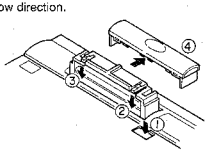
DD-92 Remove the 6 caps Ⓐ ~ Ⓕ and remove the 8 screws ① ~ ⑧.

DD-82 Remove the 8 screws ① ~ ⑧.



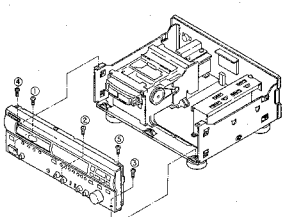
REMOVING THE CASSETTE COVER

1) Push the OPEN/CLOSE button ① and open the tray.
2) To unlock the tray panel, press the ② and ③ of the rocking knobs as shown in arrow direction.
3) Remove the tray panel ④ drawing it as shown in arrow direction.



REMOVING THE FRONT PANEL

1) Remove the tray panel (cassette cover).
2) Remove the 5 screws ① ~ ⑤.

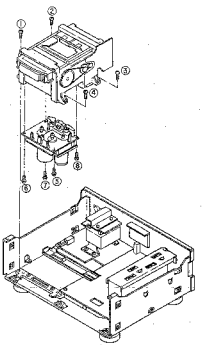


REMOVING THE LOADER (TRAY MECHANISM)

Remove the 4 screws ① ~ ④.

REMOVING THE DECK MECHANISM

1) Remove the 4 screws ① ~ ④.
2) Remove the 4 screws ⑤ ~ ⑧.



REMOVING THE POWER SUPPLY P.C.B.

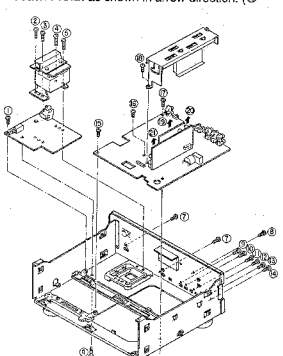
Remove the 5 screw ① ~ ⑤ and remove the spacer Ⓐ.

REMOVING THE MAIN P.C.B.

Remove the 12 screws ⑦ ~ ⑱ and remove the spacer Ⓑ.

REMOVING THE DIGITAL P.C.B. AND AD/DA P.C.B.

Draw out each P.C.B. as shown in arrow direction. (⑲ ~ ㉑)



SERVICE MODE

1. START service mode :

Press PLAY (▶) key and STOP (■) key together and then POWER-ON.

2. Functions available (select with TIME key) :

0 scrolling list of available display characters
(This performs as soon as turning POWER-ON.)
1 all display elements on
2 all display elements off one by one
3 display eye channel on oscilloscope
(select channel by using remote controls 0...8)
TIME key : **␣SET␣EYE␣CH␣**
STOP mode : **GO␣PLAY␣MODE**
PLAY mode : **EYE␣CH␣NO,␣□**
4 display system error rate for chosen channel
TIME key : **SYS␣ERR␣RATE**
STOP mode : **GO␣PLAY␣MODE**
PLAY mode : **ERR␣SYS␣␣□□□**
5 display aux error rate
TIME key : **AUX␣ERR␣RATE**
STOP mode : **GO␣PLAY␣MODE**
PLAY mode : **ERR␣AUX␣␣□□□**
6 display main error rate
TIME key : **␣MAIN␣␣DATA␣**
STOP mode : **GO␣PLAY␣MODE**
PLAY mode : **MAIN␣□CH␣□□□**
7 display all error rate average
TIME key : **ALL␣ERR␣RATE**
STOP mode : **GO␣PLAY␣MODE**
PLAY mode : **SA␣␣0 1 2 3 4 5 6 7**
immediately PLAY MODE : □□␣␣□□□□□□□□
changed each 0 ~ F
8 display all error rate real time
TIME key : **ALL␣ERR␣DISP**
STOP mode : **GO␣PLAY␣MODE**
PLAY mode : □□␣␣␣□□□□□□□□
It is OK, if the display is stable between 0 and 2.
9 back to function 0
STOP mode : **0␣PLAY␣MODE␣**

Displayed information is directly coming from DEQ and DDSP.
However, the test 3 is not available on this model.

3. END :

Press COUNTER RESET key.

FACTORY MODE

START Factory mode :
Press STOP (■) key and BACKWARD (◀◀) key together and then POWER-ON.

1. All of display elements on after several seconds of DISPLAY : **FACTORY␣MODE,**
and "PLAY", "REC" and "STAND BY" LEDS lights.
2. Press TIME key once.
2-1. The modes on TIMER SW are displayed.
PLAY mode : □**␣TIMER␣PLAY**
OFF mode : □**␣TIMER␣OFF␣**
REC mode : □**␣TIMER␣REC␣**
└ The numerals in paragraph 2-2 are displayed.

2-2. Make sure the length of DCC cassette, and SW (SW mechanism).

Display	LENGTH Run time of cassette tape			REC SW (Protect)	TIME min.
	0	1	2		
0	OFF	OFF	OFF	OFF No Protect (REC is able.)	45
1	ON	OFF	OFF		60
2	OFF	ON	OFF		75
3	ON	ON	OFF		90
4	OFF	OFF	ON		105
5	ON	OFF	ON		120
6	ON	ON	ON		
7	ON	ON	ON		✻1
8	OFF	OFF	OFF	ON Protect (REC is inable.)	✻2
9	ON	OFF	OFF		45
A	OFF	ON	OFF		60
B	ON	ON	OFF		75
C	OFF	OFF	ON		90
D	ON	OFF	ON		105
E	ON	ON	ON		120
F	ON	ON	ON		

SWITCH side : TAPE side
OFF (Open) : With hole
ON (Closed) : without hole

✻1 When no cassette is installed.
✻2 When music tape is installed.

2-3. When each MARKER key is pressed, display is changed to numeral mode.
When each MARKER key is pressed, numeral display is changed.

AUTO key	: **1␣TIMER␣**□□□□	Refer to paragraph 2-1 for the display.
WRITE key	: **2␣TIMER␣**□□□□	
RENUMBER key	: **3␣TIMER␣**□□□□	
NEXT key	: **4␣TIMER␣**□□□□	
REV key	: **5␣TIMER␣**□□□□	
ERASE key	: **6␣TIMER␣**□□□□	

3. Press TIME key once.
3-1. In this case, Ageing mode (Also OK in Analog compact cassette)
DISPLAY : ␣␣␣**AGEING**␣␣␣
when a cassette is installed.
→ PLAY → STOP → FF(▶▶) → REW(◀◀) → OPEN → CLOSE →
Approx. 90 sec.
4. Press TIME key once.
4-1. In this case, Direct REC (Just press REC key, then recording starts).
If REW (◀◀) key is pressed while recording, recording stops after rewinding until start position of the record, (The marker when stopping to record is not written.)
5. Press TIME key once.
Back to 1.

END :

MICROPROCESSOR I/O PINS AND THEIR FUNCTIONS

QD01: μPD75P238

Pin No.	Port Name		I/O	Act	Function
1	AN0	MODEL SELECT	I	H	Model name sensor
2	AVREF	AVREF	–	–	AD converter reference voltage, +5V
3	AVDD	AVDD	–	–	AD converter power supply, +5V
4	VDD	VDD	–	–	VDD, +5V
5	VDD	VDD	–	–	VDD, +5V
6	X2	X2	–	–	Main clock, 4.19MHz
7	X1	X1	–	–	Main clock, 4.19MHz
8	IC	–	–	–	GND
9	XT2	–	–	–	N. C.
10	XT1	–	–	–	GND
11	Vss	Vss	–	–	Vss, GND
12	S16	18	O	H	Segment output
13	S17	17	O	H	Segment output
14	S18	16	O	H	Segment output
15	S19	15	O	H	Segment output
16	S20	N	O	H	Segment output
17	S21	R	O	H	Segment output
18	S22	K	O	H	Segment output
19	S23	H	O	H	Segment output
20	S0	P	O	H	Segment output *Key scan output in common
21	S1	J	O	H	Segment output *Key scan output in common
22	S2	M	O	H	Segment output *Key scan output in common
23	S3	G	O	H	Segment output *Key scan output in common
24	S4	F	O	H	Segment output
25	S5	E	O	H	Segment output
26	S6	D	O	H	Segment output
27	S7	C	O	H	Segment output
28	S8	B	O	H	Segment output
29	S9	A	O	H	Segment output
30	VDD	VDD	–	–	VDD, +5V
31	VLOAD	VLOAD	–	–	–30V power supply for display
32	T15	13G	O	H	Digit output
33	T14	15G	O	H	Digit output
34	T13	14G	O	H	Digit output
35	T12	1G	O	H	Digit output
36	T11	2G	O	H	Digit output
37	T10	3G	O	H	Digit output
38	T9	4G	O	H	Digit output
39	T8	5G	O	H	Digit output
40	T7	6G	O	H	Digit output
41	T6	7G	O	H	Digit output
42	T5	8G	O	H	Digit output
43	T4	9G	O	H	Digit output
44	T3	10G	O	H	Digit output
45	T2	11G	O	H	Digit output
46	T1	12G	O	H	Digit output
47	T0	16G	O	H	Digit output

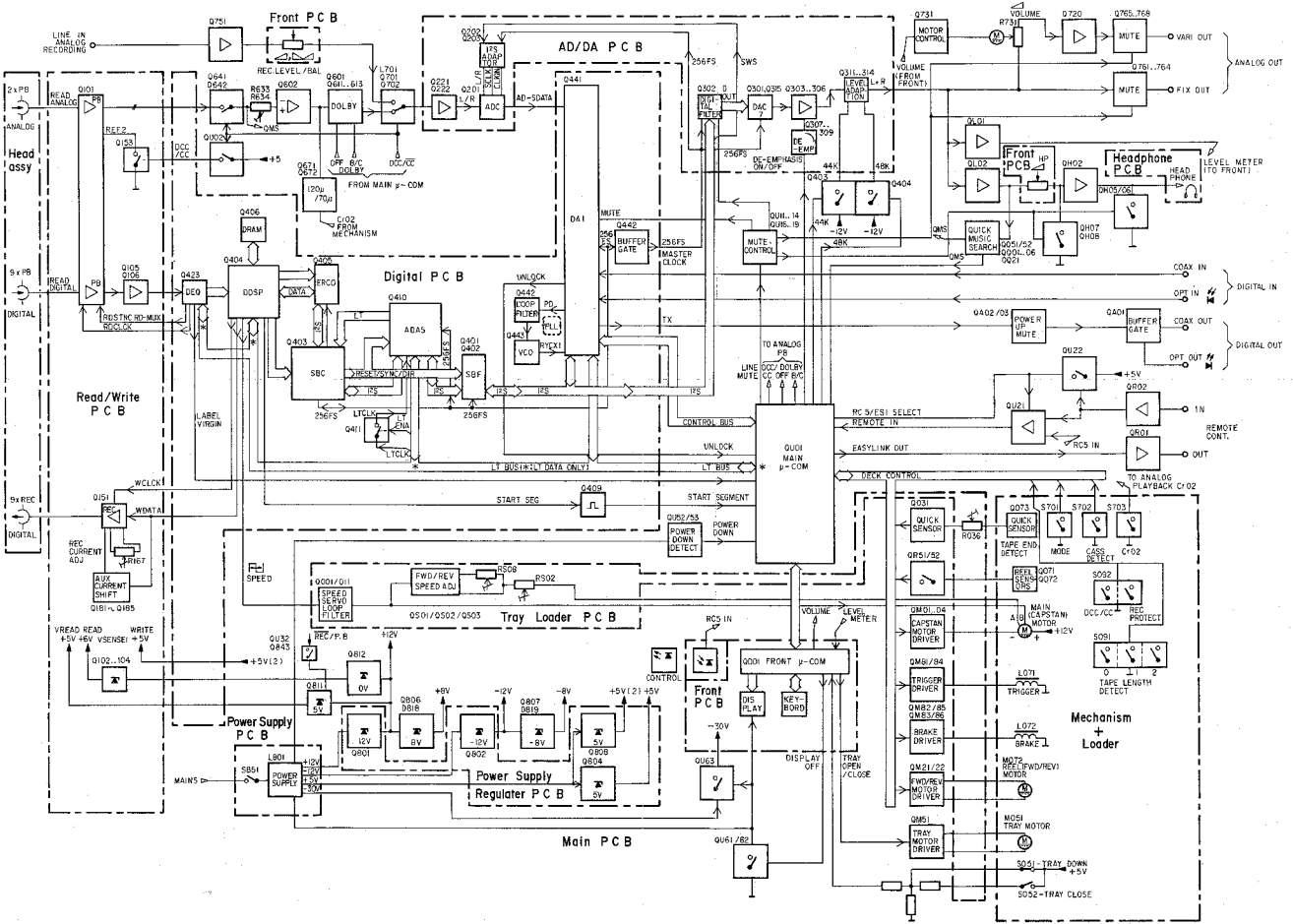
Pin No.	Port Name		I/O	Act	Function
48	VDD	VDD	–	–	VDD, +5V
49	P83	–	–	–	+5V
50	P82	–	–	–	+5V
51	P81	–	–	–	+5V
52	P80	–	–	–	+5V
53	P73	TRAY CLOSE	O	H	Tray open output
54	P72	TRAY OPEN	O	H	Tray close output
55	P71	VOL. DOWN	O	H	Motor volume up
56	P70	VOL. UP	O	H	Motor volume down
57	P63	–	–	–	N. C.
58	P62	ACK	I/O	L	Communication with Mecha μ-com
59	P61	REDY	I	L	Communication with Mecha μ-com
60	P60	START	I/O	H	Communication with Mecha μ-com
61	P53	KEY 7	I	H	Key input
62	P52	KEY 6	I	H	Key input
63	P51	KEY 5	I	H	Key input
64	P50	KEY 4	I	H	Key input
65	Vss	Vss	–	–	Vss, GND
66	P43	KEY 3	I	H	Key input
67	P42	KEY 2	I	H	Key input
68	P41	KEY 1	I	H	Key input
69	P40	KEY 0	I	H	Key input
70	P33	DIS OFF	O	H	Display OFF output
71	P32	STAND BY LED	O	L	Stand-by LED lights
72	P31	REC LED	O	L	REC LED lights
73	P30	PLAY LED	O	L	PLAY LED lights
74	P23	–	–	–	N. C.
75	P22	RC-5 OUT	–	–	N. C.
76	P21	RC-5 MASK	I	L	Remote control input inhibit
77	P20	EASY LINK OUT	O	L	Easy Link output
78	P13	CD EDIT	–	–	CD edit
79	P12	–	–	–	N. C.
80	P11	EASY LINK SELECT	I	→	Easy Link/RC-5 input selection High: RC-5, Low: EASY
81	P10	REMOTE IN	I	L	Remote control input
82	SI0	SI	I	L	Communication data input with mecha μ-com
83	SO0	SO	O	L	Communication data output with mecha μ-com
84	SCK0	SCK	I	L	Communication clock with mecha μ-com
85	P00	–	–	–	GND
86	RESET	RESET	I	L	Reset
87	AVss	AVss	–	–	AD converter Vss, GND
88	AN7	–	–	–	GND
89	AN6	TRAY SW	I	H	Tray position sensor
90	AN5	TIMER SW	I	H	Timer Rec/Timer PLAY sensor
91	AN4	DOLBY SW	I	H	Dolby OFF/B/C sensor
92	AN3	SELECTOR	I	H	Optical/Coaxial/Analog input sensor
93	AN2	LEVEL METER (R)	I	H	Level meter input, Rch
94	AN1	LEVEL METER (L)	I	H	Level meter input, Lch

QU01: μPD75P518

Pin No.	Port Name		I/O	ACT	Function
1	AN0	OMS	I	H	Blank sensor input
2	AVREF	AVREF	–	–	AD converter reference voltage, +5V
3	VDD	VDD	–	–	VDD, +5V
4	VDD	VDD	–	–	VDD, +5V
5	P113	LTEN SBC	O	H	SBC enable output
6	P112	LTEN DSP	O	H	DDSP enable output
7	P111	LTEN DAI	O	H	DAI enable output
8	P110	LTEN EQU	O	H	DEQ enable output
9	P103	LT CONT 0	O	H	IC mode control
10	P102	LT CONT 1	O	H	IC mode control
11	P101	CS	O	H	E² PROM chip select
12	P100	U SYNC I	O	L	U bit data, indicator output
13	P93	DATA IN	I	P	E² PROM data input
14	P92	–	–	–	Pull down
15	P91	IM START	I	L	U bit data, message start input
16	P90	U SYNC O	I	L	U bit data, indicator input
17	P83	–	–	–	GND
18	P82	–	–	–	N. C.
19	P81	–	–	–	N. C.
20	P80	PWM CAP	–	–	N. C.
21	P73	BRK SOL 2	O	L	Brake solenoid drive, Low
22	P72	BRK SOL 1	O	L	Brake solenoid drive, High
23	P71	TRG SOL	O	L	Trigger solenoid drive
24	P70	CAP MOTOR	O	L	Capstan motor drive
25	P63	PWM	–	–	N. C.
26	P62	SPEED	O	→	Reel motor control Low: High speed, High: Low speed
27	P61	REV	O	H	Reel motor control, Reverse
28	P60	FWD	O	H	Reel motor control, Forward
29	P53	POWER DOWN	I	L	Mecha reset when Power is OFF
30	P52	LABEL	I	H	Label sensor
31	P51	VERGIN	I	H	Virgin tape sensor
32	P50	–	–	–	GND
33	Vss	Vss	–	–	Vss, GND
34	P43	RESET	O	L	Reset for IC
35	P42	READ ON/OFF	O	→	READ AMP ON/OFF High: ON, Low: OFF
36	P41	–	–	–	N. C.
37	P40	–	–	–	N. C.
38	P33	–	–	–	N. C.
39	P32	SET-SY	–	–	N. C.
40	P31	ATT DAC	–	–	N. C.

Pin No.	Port Name		I/O	ACT	Function
41	P30	ACK	I/O	L	Communication with Front μ-com
42	P23	START	O	L	Communication with Front μ-com
43	P22	REDY	I/O	H	Communication with Front μ-com
44	P21	DIS FRT	O	L	Communication with Front μ-com
45	P20	SI0 IN/OUT	O	L	Communication with Front μ-com
46	TI0	AUX ENV	I	P	AUX label sensor
47	INT 2	START SEG	I	L	Interface sync signal
48	INT 1	IRQU	I	H	U bit data information indicator input
49	INT 0	T-REEL	I	P	Take-up reel pulse
50	SI0	LT DATA IN	I	L	LT interface data input
51	SO0	LT DATA OUT	O	L	LT interface data output
52	SCK0	LT CLOCK	O	L	LT interface data clock
53	INT4	S-REEL	I	P	Supply reel pulse
54	Vss	Vss	–	–	Vss, GND
55	XT1	XT1	–	–	GND
56	XT2	XT2	–	–	N. C.
57	IC	–	–	–	GND
58	X1	X1	–	–	Main clock, 4.19MHz
59	X2	X2	–	–	Main clock, 4.19MHz
60	RESET	RESET	I	L	Reset
61	P143	DOLBY C	O	L	Dolby IC control
62	P142	DOLBY OFF	O	H	Dolby IC control
63	P141	P.B/REC	O	→	Rec/Play output Low: Rec, High: PLAY
64	P140	DCC/ACC	O	→	DCC/ACC output High: DCC, Low: ACC
65	P133	LINE MUTE	O	H	Mute output
66	P132	48K	O	H	Line out gain control
67	P131	44K	O	H	Line out gain control
68	P130	DE-ENPHASIS	O	H	Emphasis ON output
69	P123	TAPE IN	I	→	Tape loaded/unloaded sensor Low: loaded, High: unloaded
70	P122	DCC/ADC IN	I	→	ACC/DCC Tape sensor Low: ACC, High: DCC
71	P121	LEADER	I	H	Quick sensor detection
72	P120	MODE SW	I	→	Head base position sensor High: Stop, Low: Play
73	AVss	A Vss	–		AD converter Vss, GND
74	AN7	REC PROTECT	I	→	Rec enable/inhibited Low: inhibited, High: enable
75	AN6	TAPE LENGTH 0	I	→	DCC tape length sensor Detects the length with 3-pin ON/OFF matrix
76	AN5	TAPE LENGTH 1	I	→	
77	AN4	TAPE LENGTH 2	I	→	
78	AN3	DEBUG 0	–	–	Pull up
79	AN2	DEBUG 1	–	–	Pull up
80	AN1	DEBUG 2	–	–	Pull up

BLOCK DIAGRAM



DESCRIPTION OF SIGNAL NAMES

Description of signal names

Signal name	*Signal flow*	*Function*	*Explanation*
128Fs	SBC → n.c.	clock	Clock output from SBC, 128 x sampling frequency.
256Fs	SBC ↔ DAI SBC → SBF SBC → ADC SBC → DAC SBC → ADAS	system clock	Master clock signal (256 x sampling frequency) for SBF, DAI, ADC, DAC and ADAS. Is generated by SBC with exception of the mode Digital Record. In that case the DAI is the MASTER and supplies 256Fs and all other related signals. For DAB (digital audio broadcast) Fs = 32 kHz/48 kHz. For CD (compact disc) Fs = 44.1 kHz For DCC (own recording) Fs = 48 kHz, 44.1 kHz (analog source)
ADRS0 ADRS1 ADRS2 ADRS3 ADRS4 ADRS5 ADRS6 ADRS7	DDSP → DRAM	address lines	8 address lines to DRAM to locate an address for writing data into or reading data from memory.
ADSDI	DAI ← ADC	analog/digital serial data input	DAI input for serial data from AD convertor (see also SDATA).
AENV	DEQ → µC	alternating envelope	Monitors during DCC search mode the start of a track (from auxiliary channel signal).
ATT	dig filter ← µC	attenuation	Data input for digital filter to set its attenuation register.
ATTDAC	SBC → n.c.	attenuate DAC	Control line (output from SBC) connected to DAC attenuation input.
AUX	DEQ → DDSP	auxiliary channel output	Sliced output from DEQ of auxiliary channel data (bit rate 12 kb/s) routed to DDSP input TAUX.

Signal name	*Signal flow*	*Function*	*Explanation*
AZCHK	DDSP → test pin	azimuth check	Monitors the azimuth of channels 0 and 7 (output of DDSP).
BCKI	dig filter ← I²S	bit clock input	Clock signal input for digital filter according I²S format (see also SCL).
BCKO	dig filter → DAC	bit clock output	Clock signal output from digital filter according I²S format to DAC clock input SCKI. See also SCL and SCKI.
CH0 CH1 CH2 CH3 CH4 CH5 CH6 CH7	DEQ → DDSP	channel n	DEQ channel n output to DDSP inputs TCH0..TCH7.
CKI	dig filter ← SBC or DAI	clock input	256Fs (256 x sampling frequency) clock input for digital filter. See also 256Fs.
CKSL	→ dig filter	clock selection	Input for digital filter to discriminate between used clock frequencies. CKSL=0; clock = 256Fs CKSL=1; clock = 384Fs
CLAB	ERCO ↔ SBC	I²S bit clock	Bit clock I/O from ERCO directly connected to SBC I/O SBCL pin (see also SBCL).
CLK22	SBC → n.c.	22.5792 MHz clock output	
CLK24	SBC → DDSP SBC → DEQ SBC → ADAS	24.576 MHz master clock	Master clock from SBC to DDSP, ADAS and DEQ to determine the length of tape frame and inter frame gap. In case of a digital recording this clock is not synchron with the sampling frequency and its related frequencies, coming from the DAI (see also F24).
DAAB	ERCO ↔ SBC	serial data (I²S)	Bidirectional I²S serial data line between ERCO and SBC (see also SBDA).

Signal name	*Signal flow*	*Function*	*Explanation*
DATA0 DATA1 DATA2 DATA3 DATA4 DATA5 DATA6 DATA7	ERCO ↔ DDSP	data line n	Parallel data lines for symbol transfer between ERCO and DDSP. DDSP is the master.
DEEMDAC	SBC ↔ n.c.	deemphasize DAC	Control line for DAC
DIGEYE	DEQ → test pin	digital eye output	Serial data output signal to obtain digital eye pattern to test equalization performance of the channels. See also VAL.
DIN	dig filter ← I²S	data input	Serial data input according I²S format.
DOEN	DAC ← n.c.	data output enable	One-bit digital output enable; when LOW, the one-bit code outputs are made available for further digital processing.
DOL	dig filter → DAC	digital output left	Serial data output of digital filter offered to SDI1 input of DAC. See also SDI1.
	DAC → DAC		Serial one-bit data
DOR	dig filter → DAC	digital output right	Serial data output of digital filter offered to SDI2 input of DAC. See also SDI2.
	DAC → DAC		Serial one-bit data
ED0 ED1 ED2 ED3 ED4 ED5 ED6 ED7 ED8 ED9	DDSP ↔ ERCO	Erco data line	Bidirectional parallel databus between DDSP and ERCO.

Signal name	*Signal flow*	*Function*	*Explanation*
EFAB	ERCO → SBC	Error flag	I²S error flag directly connected to SBC input SBEF to give the error status of bytes being transferred during data playback (see also SBEF).
F24	DDSP ← SBC DEQ ← SBC	24,576 MHz master clock	Master clock from SBC to DDSP and DEQ to determine the length of tape frame and inter frame gap. In case of a digital recording this clock is not synchron with the sampling frequency and its related frequencies, coming from the DAI (see also CLK24).
FDA	SBF ↔ ADAS	filtered data	Bidirectional serial data line between SBF and ADAS.
	SBC ↔ ADAS		Bidirectional serial data line between SBC and ADAS.
			Data transfer in I²S format, carrying 32 sub-band channels digital audio data (see also FDAF and FDAC). Each SWS period 2x18 bits data are transferred.
FDAC	ADAS ↔ SBC	filtered data	Filtered data transfer between ADAS and SBC (see also FDA).
FDAF	ADAS ↔ SBF	filtered data	Filtered data transfer between ADAS and SBF (see also FDA).
FDIR	SBC → SBF SBC → ADAS	direction control	Control line output from SBC to SBF and ADAS to indicate the mode of operation. FDIR=1; decoding mode (sub-band synthesis) FDIR=0; encoding mode (sub-band analysis).
FLAG1 FLAG2	ERCO ↔ DDSP	data bus flag	Data lines for symbol transfers between ERCO and DDSP. DDSP acts as the master (see also ED8 and ED9).
FRESET	SBC → SBF SBC → ADAS	filter reset	Reset output from SBC to cause a general reset for SBF and ADAS.

Signal name	*Signal flow*	*Function*	*Explanation*
FSYNC	SBC → SBF SBC → ADAS	filter synchro-nization	At filter sync, with a repetition rate of $F_S/32$, the transfer of the 2x32 sub-band samples is started. Fsync ensures each SBF is synchronized with the SBC to permit only transfer of sub-band 0 data during FSYNC.
IFL	DDSP → ERCO	imposed flag	During the ERCO encoding mode the IFL line from DDSP is used to force the symbol currently transferred to the ERCO to become a parity symbol during ERCO encoding.
IMSTRT	DAI → µC	information message start	Control line from DAI to main µC to indicate the start of a message transfer.
INHERCO	DDSP → ERCO	inhibit ERCO	Control line output of DDSP to inhibit the ERCO for settings transfer. These settings determine whether the ERCO should encode or decode (see also SETINH).
INTL+ INTL-	DAC → L-ch	integrator left	Analog output of the DAC (outputs'from the left positive and negative switched-capacitor integrator) to the left channel amplifier stage.
INTR+ INTR-	DAC → R-ch	integrator right	Analog output of the DAC (outputs from the right positive and negative switched-capacitor integrator) to the right channel amplifier stage.
IOSC	ERCO ← SBC	input oscil-lator	Oscillator input for ERCO coming from the sub-band coder SBMCLK output. The nominal frequency is 6.144 MHz. See also SBMCLK.
IRQU	DAI → µC	information request mi-crocontroller	Control line to indicate the main micro-controller information can be read.

Signal name	*Signal flow*	*Function*	*Explanation*
I²S-bus		inter IC sound	3-line serial bus consisting of a line for two time-multiplexed audio data channels, a word select line for indication of the channel being transmitted (left or right) and a clock line. The lines are called SD, WS and SCK. The device which generates the SCK and WS is the master. See also SCK, SWS and SDA.
LABEL	DEQ → µC	label	Search mode label detection output of DEQ signals that a label is found in the AUX-channel. When DCC player is in search mode, the tape speed increases. LABEL information is encoded through-out its length. To examine the length of a label, the tape speed must be known. In search mode DEQ assesses the speed of labelled tapes. The microcontroller obtains this information via the LT-inter-face.
LRCI	dig filter ← I²S	L/R clock input	Word clock input for the digital filter, connected to SWS control line of I²S-interface. Data from DIN (data in) is latched into the left- and right input regis-ters on alternate transitions of the word clock. See also SWS.
LT-Bus	µC → DAI µC → ADAS µC → DEQ µC → DDSP		LT-interface is used for the system con-trol of the digital panel. The LT-interface consists of clock-, data-, control- and enable lines.
LTCLK	µC → DAI µC → ADAS µC → DEQ µC → DDSP	LT-clock	Bit clock line for the LT-interface. Main microcontroller supplies the bit clock and acts as master whilst the other devices perform as slaves.
LTCNT0 LTCNT1	µC → DAI µC → ADAS µC → DEQ µC → DDSP	LT control lines	Control lines of the LT-interface output from main microcontroller. LTCNTn determine the type of transfer to occur across the LTDATA serial data line to/from microcontroller.

Signal name	*Signal flow*	*Function*	*Explanation*
LTDATA	µC → DAI µC → ADAS µC → DEQ µC → DDSP	LT data	Bidirectional serial data line of the LT-interface from/to microcontroller. Direction of data transfer is dependant on the information on LTCNT0 and LTCNT1.
LTENA LT-ADAS	µC → ADAS	LT enable ADAS	Activates the LT-interface of the ADAS in case LTENA =1.
LTEN LT-DAI	µC → DAI	LT enable DAI	Activates the LT-interface of the DAI in case LTEN (on DAI) =1.
LTEN LT-DDSP	µC → DDSP	LT enable DDSP	Activates the LT-interface of the DDSP in case LTEN (on DDSP) =1.
LTENDEQ LT-DEQ	µC → DEQ	LT enable DEQ	Activates the LT-interface of the DEQ in case LTENDEQ =1.
LT-Subbus LTCLKC LTCNT0C LTCNT1C LTDATAC LTENC	ADAS → SBC	LT-interface	LT-interface for communication between SBC and ADAS. Here the ADAS is the master.
MCLK	DDSP → ERCO	master clock	MCLK line of the DDSP provides the 6.144 MHz master clock signal and is connected to the MCLK input of the ERCO. This clock (128 x Fs) is used for the symbols transfer between DDSP and ERCO.
MODE0 MODE1	DAI ← µC	mode selection input	Control lines from the microcontroller to select the operation mode of the DAI. DAI operates in µC mode when both lines are at '0' level.
MPCL	DDSP → ERCO	clock phase reference	The MPCL output of the DDSP provides the 3.072 MHz (64 x Fs) clock phase reference signal which is connected to the MPCL input of the ERCO.
MSTCK	DAI ↔ 256Fs	master clock	Bidirectional master clock line. Dependant on CKSEL settings the master clock is at 128Fs or256 Fs. See also 256Fs.

Signal name	*Signal flow*	*Function*	*Explanation*
MUTE	DAI ← µC	mute audio	Control line from microcontroller to mute the digital audio interface. The audio output of the DAI is kept zero when the PLL is not locked in the reception mode (see also UNLOCK).
	dig filter ← µC		Set the internal digital attenuation register to its maximum, causing an infinite attenuation. In this case audio output is muted. On digital filter data sheet the pin is called MLE (mode set latch enable).
MUTEDAC	SBC → n.c.	mute DAC	control output line of SBC for D/A convertor.
NER0 NER1 NER2	ERCO → test connector	number of erasures	The NERx outputs produce an indication of the number of erasures encountered in the code word currently being processed.
OEN	DDSP → DRAM	output enable	Output enable for DRAM.
OERDCB	DDSP → ERCO	output enable for ERCO	Indication for the ERCO to output data on the data bus lines (DATA1..DATA7, FLAG1 and FLAG2).
PD1 PD2	DAI → VCO	phase detector	Phase detector output from DAI for the charge pump of the VCO. The VCO locks to incoming frequencies on digital input. When locked the DAI supplies the 256Fs master clock.
PRGSTAT	DDSP → n.c.	program status	DDSP program status output.
RASN	DDSP → DRAM	row address strobe negative	row address strobe for DRAM.
RDATA0 RDATA1 RDATA2 RDATA3	DDSP ↔ DRAM	RAM data bus	Bidirectional data bus between DDSP and DRAM. On DRAM IC these lines are called DQ1..DQ4.

Signal name	*Signal flow*	*Function*	*Explanation*
RDCLK	DEQ → read amp	read clock	Data clock (960 kHz) for the read amplifier. The data of 8 data channels and 1 aux channel is transferred during 10 RDCLK periods.
RDMUX	read amp → DEQ	read multiplex	Read multiplexer output from read amplifier to DEQ. See also VIN.
RDSYNC	DEQ → read amp	read synchronization	Control output of DEQ to read amplier to synchronize the read amplifier multiplexer and the DEQ demultiplexer.
READB	DDSP → ERCO	read enable	Read enable for ERCO. When active the ERCO reads data from DDSP on data bus ED0..ED9.
RESET	→ ADAS → SBC → DDSP → DAI → dig filter	reset	Hardware reset (power up) from +5 voltage supply.
RESETC	DDSP → ERCO	reset erco	Control output from DDSP to ERCO to reset ERCO.
RST	RESET → dig filter	reset	Hardware reset for digital filter (see also RESET).
RX1	DAI ← COAX in	receive data	Receive digital data according IEC format digital audio for coaxial input.
RX2	DAI ← OPT in	receive data	Receive digital data according IEC format digital audio for optical input.
RXCKI	DAI ← VCO	receive clock input	Input for VCO frequency (256Fs).
RXCKO	DAI → VCO	receive clock output	Output for VCO frequency (256Fs).
RXSEL	DAI ← 0	receiving mode selection	Selection between reception inputs RX1 and RX2.

Signal name	*Signal flow*	*Function*	*Explanation*
SBCL	SBC ↔ ERCO	sub-band clock	SBCL line is part of the S(ub)-B(and)-I²S interface and provides the bit clock. See also CLAB.
SBDA	SBC ↔ ERCO	sub-band data	Sub-band I²S interface line for serial data transfer between SBC and ERCO.
SBDIR	SBC ← DDSP	sub-band direction	Control line from DDSP to SBC to indicate the direction of the data flow between ERCO and SBC on SBDA line.
SBEF	SBC ← ERCO	sub band error flag	I²S error flag to give the error status of bytes being transferred during data playback to the SBC (see also EFAB).
SBMCLK	SBC → ERCO	sub-band master clock	Master clock (6.144 MHz) for ERCO (see also IOSC)
SBWS	SBC ↔ ERCO SBC ↔ DDSP	sub-band word select	The SBWS signal indicates the channel of the sample (either left or right) and is equal to the sampling frequency Fs. On the ERCO and DDSP devices the signal is called WS (see also WS).
SCK/BCK	DAI ↔ I²S	shift / bit clock	Bidirectional shift/bit clock for audio data connected to I²S-bus.
SCKI	DAC ← dig filter	serial clock input	Bit clock input for the serial input interface. Clock is supplied by the digital filter via the BCKO pin (see also BCKO).
SCL	SBC → SBF SBC → ADAS SBC ↔ DAI SBC → dig filter DAI → I²S adaption of ADC	serial clock	Bit clock for the I²S-interface. Clock frequency is 64x sampling frequency. See also BCKI, SCK/BCK and SCLK.
SD/SDI	DAI ← I²S-bus	serial data input	Bidirectional serial data line for the I²S-bus (see also SDA).
SD0	DAI → n.c.	serial data output	Serial data output for digital audio data bus.

Signal name	*Signal flow*	*Function*	*Explanation*
SDA	DAI ↔ SBF DAI → DAC (via digital filter) ADC → DAI	serial data	Serial data line of I²S-bus. The data line carries digital audio (broad band data) according I²S-format. Two samples (left- and right channel) are transferred during one SWS-period. The ADC outputs broad band data via its SDATA pin, the DAI receives data on its ADSDI pin and outputs data on SDI, the digital filter receives data on DIN and the DAC on SDI1 and SDI2.
SDATA	ADC → DAI	serial data	Serial data output of AD convertor which is transferred to DAI data input ADSDI (see also ADSDI).
SDI1 SDI2	DAC ← dig filter	serial data input	Serial data inputs (broad band digital audio data) for conversion to analog left and right audio. The data comes from the DOL and DOR outputs of the digital filter. See also DOL, DOR and SDA.
SELERFI	DDSP → ERCO	select ERCO/FIFO	Control line output of DDSP to determine the nature of data transferred to ERCO. If SELERFI=1 the transfers are to and from the error correction section. If SELERFI=0 transfers are to and from I²S-interface section of the ERCO device.
SETDAT	ERCO ← DDSP	settings data register	Data settings line for the settings register of the ERCO. SETDAT determines the operational mode of the ERCO device. See also SETERCO.
SETERCO	DDSP → ERCO	set ERCO	Output of DDSP to transfer control settings of the ERCO (see also SETDAT). These settings determine whether ERCO should encode or decode and it also designates the direction of data transfer for the I²S-interface.
SETINH	ERCO ← DDSP	settings inhibit	When SETINH is active the ERCO can receive settings data (via SETDAT line) from DDSP for its operation mode (see also INHERCO, SETDAT and SETERCO).

Signal name	*Signal flow*	*Function*	*Explanation*
SETPIN1 SETPIN2	DDSP → n.c.		Microcontroller port expander outputs.
SETSY	DAI ← SBC	settings sync	DAI latches new settings in internal register when SETSY is active. SETSY is sent by SBC which takes care for external clock source synchronization (see also SYNCDAI).
SPEED	DDSP → servo capstan motor	speed control	Pulse width modulated control output of DDSP for phase regulating the speed of the capstan in the tape deck (tape speed).
STMPB	DDSP → ERCO	start error-correction program	STMPB initiates the execution of the error correction program, to begin processing a new code word and causes activation of the new settings for both I²S-interface and the ERCO.
STRTSEG	DDSP → µC	start segment	STARTSEG indicates the start of a new segment. The STRTSEG output from the DDSP is used as a timing reference for transfer of SYSINFO and AUX information between the microcontroller and the DDSP.
SWS	SBC → ADAS SBC → SBF SBC ↔ DAI SBC → ADC SBC → dig filter	word select	Word select line (at sampling frequency) for I²S interface. SBC acts as the master with the exception of the mode digital recording. In that case DAI is the master. SWS is connected to WS/LRCK of the DAI, to LR of the ADC and to LRCI of digital filter (see also WS/LRCL, LR and LRCI).
SYNCDAI	SBC → DAI	synchronize DAI	With SYNCDAY (identical with SETSY) the settings for the DAI are latched. These settings are transferred via the LT-bus.

Signal name	*Signal flow*	*Function*	*Explanation*
TAUX TCH0 TCH1 TCH2 TCH3 TCH4 TCH5 TCH6 TCH7	DDSP ← DEQ	channel input	Parallel input lines of DDSP receiving sliced (digital) information of DEQ (see also AUX and CH0..CH7).
TX	DAI → digital out	transmit data	Digital data output of DAI according IEC format.
UNLOCK	DAI → VCO	unlock VCO	UNLOCK indicates that VCO frequency is locked/unlocked to received data. As long as VCO is not locked audio is muted (see also MUTE).
URDA	DDSP → SBC	unreliable data	Only during playback URDA indicates that, regardless of all other flag information, all main data, system information or AUX data is unusable. URDA occurs during a mode change from data recording to playback or if the DDSP must resynchronize with the tape signals.
USYNCI	DAI → μC	microcontroller sync input	Indicates to the microcontroller the start of a new data frame when in transmitting mode.
USYNCO	DAI ← μC	microcontroller sync output	Indicates start of a new data frame when in receiving mode.
VAL	DEQ → test pin	validation data	Validation signal output for data bits. To test equalization performance it is possible to output the equalized channels. The DEQ has for this purpose two digital outputs present: DIGEYE and VAL (see also DIGEYE).
VIN	DEQ ← read amp	voltage input	DEQ inputs via VIN time multiplexed data from read amplifier. See also RDMUX.

Signal name	*Signal flow*	*Function*	*Explanation*
VIRGIN	DEQ → μC	virgin detection	Control output of DEQ to inform the microcontroller a blank tape is inserted.
WCKO	dig filter → DAC	word clock output	Control line for DAC to indicate whether data for the left channel is transmitted or data for the right channel. Has the same function as the word select signal of the I²S-interface. See also SWS, WS and WSI.
WCLK	write amp ← DDSP	write clock	Clock signal for the write amplifier as timing reference (f = 3.072MHz). See also WCLOCK.
WCLOCK	DDSP → write amp	write clock	Write clock for write amplifier coming from DDSP. See also WCLK.
WDATA	DDSP → write amp	write data	Serial data signal of the 8 main channels and AUX channel, directed to the write amplifier.
WEN	DDSP → DRAM	write enable	Write enable of the DRAM.
WS	ERCO ↔ SBC DDSP ↔ SBC	word select	I²S-interface word selection I/O line. Is connected to SBWS pin of SBC. See also SBWS.
WS/LRCK	DAI ↔ I²S	word select/ left-right clock	Word selection for digital audio data on I²S-interface. In mode digital record the DAI is master of the I²S-bus. See also SWS.
WSI	DAC ← dig filter	word select input	See WCKO.
XIN	DAC ← 256Fs	crystal frequency input	Clock input for the DAC, set on 256 x sampling frequency. See also 256Fs, CKI and MSTCK.
XSEL	DAC ← ground	crystal selection	Control input to select between two crystal frequencies. XSEL=1; CLK=384 Fs XSEL=0; CLK=256 Fs

VOLTAGE CHARTS

Measuring condition
STOP condition (no cassette tape)
INPUT terminal : (no connection)
DOLBY SW (switch) : OFF
TIMER SW (switch) : OFF

測定条件
STOP状態（カセットなし）
入力端子：接続なし
ドルビースイッチ：OFF
タイマースイッチ：OFF

MAIN PCB (PG03)

Q031

Pin No.	1	2	3	4	5	6	7	8
Voltage	–	0V	0V	0V				5.0V

Q601

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Voltage	0V	0V	0V	0V	–7.1V	0V	0V	0V	0V	0V	–6.7V	–6.7V	0V	–5.9V	–7.1V
Pin No.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Voltage	7.1V	0V	0V	–6.7V	–6.7V	0V	0V	0V	0V	0V	3.2V	0V	0V	0V	0V

Q602

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	–7.1V	0V	0V	0V	7.1V

Q611

Pin No.	1	2	3	4
Voltage	12.0V	5.0V	0V	3.3V

Q612

Pin No.	1	2	3
Voltage	12.0V	6.0V	0V

Q720

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	–12.0V	0V	0V	0V	11.9V

Q731

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	0V	0V	–	5.0V	0V

Q751

Pin No.	1	2	3	4	5	6	7	8
Voltage				–12.0V				11.9V

QA01

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	2.4V	2.4V	2.4V	2.5V	2.4V	2.5V	0V	2.5V	2.5V	0V	0V	0V	0V	5.0V

QH02

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	–12.0V	0V	0V	0V	11.9V

QL01

Pin No.	1	2	3	4	5	6	7	8	9
Voltage	2.9V			2.0V	0V	2.0V			12.0V

QL02

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	–12.0V	0V	0V	0V	11.9V

QM21

Pin No.	1	2	3	4	5	6	7	8	9	10
Voltage	0V			3.7V			13.1V			

QM51

Pin No.	1	2	3	4	5	6	7	8	9	10
Voltage	0V			7.4V	2.7V	2.7V	13.1V	13.1V		

QQ01

Pin No.	1	2	3	4	5	6	7	8	9
Voltage	2.0V		2.0V	–	–		–		10.3V

QQ51

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	–12.0V	0V	0V	0V	11.9V

QU01

Pin No.	1	2	3	4	5	6	7	8	9	10
Voltage		5.0V	5.0V	5.0V					4.8V	
Pin No.	11	12	13	14	15	16	17	18	19	20
Voltage		0.10V			4.8V		0V	–	–	–
Pin No.	21	22	23	24	25	26	27	28	29	30
Voltage	4.8V	4.9V	4.9V	4.9V	–	4.5V			5.0V	
Pin No.	31	32	33	34	35	36	37	38	39	40
Voltage	4.8V	0V	0V			–	–	–	–	–
Pin No.	41	42	43	44	45	46	47	48	49	50
Voltage	4.9V	4.8V		4.9V	4.8V		4.8V			4.8V
Pin No.	51	52	53	54	55	56	57	58	59	60
Voltage		4.9V		0V	0V	–	0V			5.0V
Pin No.	61	62	63	64	65	66	67	68	69	70
Voltage			3.6V	3.0V	2.8V	5.0V	5.0V		5.0V	5.0V
Pin No.	71	72	73	74	75	76	77	78	79	80
Voltage		4.8V		5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	

QU21

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	4.8V	0V	0.8V	4.9V	4.9V	0.8V	0V							5.0V

QU81

Pin No.	1	2	3	4	5	6	7	8
Voltage					0V	–	–	5.0V

Q611			
Pin No.	E	C	B
Voltage	4.9V	0V	4.9V

Q612			
Pin No.	E	C	B
Voltage	-7.1V	3.2V	-7.1V

Q613			
Pin No.	E	C	B
Voltage	3.2V	3.2V	0V

Q641			
Pin No.	E	C	B
Voltage	0V	0V	

Q642			
Pin No.	E	C	B
Voltage	6V	0V	

Q671			
Pin No.	E	C	B
Voltage	0V	0V	2.0V

Q672			
Pin No.	E	C	B
Voltage	0V	0V	2.0V

Q701			
Pin No.	E	C	B
Voltage	0V	12.0V	0V

Q702			
Pin No.	E	C	B
Voltage	0V	0V	3.9V

Q761			
Pin No.	E	C	B
Voltage	0V	0V	

Q762			
Pin No.	E	C	B
Voltage	0V	0V	

Q763			
Pin No.	E	C	B
Voltage	0V	0V	

Q764			
Pin No.	E	C	B
Voltage	0V	0V	

Q765			
Pin No.	E	C	B
Voltage	0V	0V	

Q766			
Pin No.	E	C	B
Voltage	0V	0V	

Q767			
Pin No.	E	C	B
Voltage	0V	0V	

Q768			
Pin No.	E	C	B
Voltage	0V	0V	

Q806			
Pin No.	E	C	B
Voltage	7.0V	11.8V	7.6V

Q807			
Pin No.	E	C	B
Voltage	-7.1V	-11.9V	-7.6V

Q809			
Pin No.	E	C	B
Voltage	0V	4.3V	0V

Q810			
Pin No.	E	C	B
Voltage	0V	0V	7.9V

Q843			
Pin No.	E	C	B
Voltage	0V	3.4V	0V

QA02			
Pin No.	E	C	B
Voltage	0V	3.4V	0V

QA03			
Pin No.	E	C	B
Voltage	2.9V	0V	3.6V

QA04			
Pin No.	E	C	B
Voltage	0V	1.7V	0.7V

QH05			
Pin No.	E	C	B
Voltage	0V	0V	

QH06			
Pin No.	E	C	B
Voltage	0V	0V	

QH07			
Pin No.	E	C	B
Voltage	0V	0V	

QH08			
Pin No.	E	C	B
Voltage	0V	0V	

QM01			
Pin No.	E	C	B
Voltage	0V	0V	0V

QM02			
Pin No.	E	C	B
Voltage	12.1V	0V	0V

QM03			
Pin No.	E	C	B
Voltage	0V	12.6V	0V

QM04			
Pin No.	E	C	B
Voltage	0V	0V	4.8V

QM22			
Pin No.	E	C	B
Voltage	0V	0V	5V

QM81			
Pin No.	E	C	B
Voltage	0V	0V	4.2V

QM82			
Pin No.	E	C	B
Voltage	0V	0V	4.8V

QM83			
Pin No.	E	C	B
Voltage	0V		

QM84			
Pin No.	E	C	B
Voltage	0V	13.1V	0V

QM85			
Pin No.	E	C	B
Voltage	0V	13.1V	0V

QM86			
Pin No.	E	C	B
Voltage	0V	13.1V	0V

QM87			
Pin No.	E	C	B
Voltage	0V	13.1V	13.1V

QQ03			
Pin No.	E	C	B
Voltage	0V	0V	2.9V

QQ04			
Pin No.	E	C	B
Voltage	0V	0V	3.2V

QQ05			
Pin No.	E	C	B
Voltage	0V	0.6V	0V

QQ06			
Pin No.	E	C	B
Voltage	0V	0V	2.9V

QQ21			
Pin No.	E	C	B
Voltage	0.2V	3.9V	0.9V

QQ52			
Pin No.	E	C	B
Voltage	0V	0V	2.9V

QR01			
Pin No.	E	C	B
Voltage	5.0V	5.0V	0V

QR02			
Pin No.	E	C	B
Voltage	0V	4.8V	0V

QR51			
Pin No.	E	C	B
Voltage	0V	0V	3.2V

QR52			
Pin No.	E	C	B
Voltage	0V	0V	3.1V

QU02			
Pin No.	E	C	B
Voltage	0V	0V	3.9V

QU03			
Pin No.	E	C	B
Voltage	5.0V	-12.0V	5.0V

QU04			
Pin No.	E	C	B
Voltage	5.0V	-12.0V	5.0V

QU11			
Pin No.	E	C	B
Voltage	3.6V	3.8V	0V

QU12			
Pin No.	E	C	B
Voltage	3.9V	3.9V	4.2V

QU13			
Pin No.	E	C	B
Voltage	0V	0V	2.9V

QU14			
Pin No.	E	C	B
Voltage	0V	0V	2.9V

QU16			
Pin No.	E	C	B
Voltage	3.9V	3.5V	4.2V

QU17			
Pin No.	E	C	B
Voltage	2.9V	5.0V	3.5V

QU15			
Pin No.	E	C	B
Voltage	3.6V	3.5V	0V

QU19			
Pin No.	E	C	B
Voltage	4.2V	5.0V	5.0V

QU22			
Pin No.	E	C	B
Voltage	0V	5.0V	0V

QU32			
Pin No.	E	C	B
Voltage			

QU33			
Pin No.	E	C	B
Voltage	4.9V	0V	4.9V

QU52			
Pin No.	E	C	B
Voltage	5.5V	0V	5.5V

QU53			
Pin No.	E	C	B
Voltage	0V	8.6V	0V

QU54			
Pin No.	E	C	B
Voltage			

QU55			
Pin No.	E	C	B
Voltage	0V		

QU56			
Pin No.	E	C	B
Voltage	0V		

QU57			
Pin No.	E	C	B
Voltage	0V	5.0V	0V

QU61			
Pin No.	E	C	B
Voltage	-29.1V	-29.1V	4.3V

QU62			
Pin No.	E	C	B
Voltage	5.0V	4.8V	0V

QU63			
Pin No.	E	C	B
Voltage	-31.0V	-30.4V	-29.7V

QU64			
Pin No.	E	C	B
Voltage	0V	5.0V	0V

QU65			
Pin No.	E	C	B
Voltage	5.0V	0V	5.0V

DC POWER SUPPLY (PS03)

Q871

Pin No.	1	2	3	4
Voltage	17.1V	12.0V	0V	4.2V

Q872

Pin No.	1	2	3
Voltage	−19.0V	−12.1V	0V

Q873

Pin No.	1	2	3	4
Voltage	9.6V	5.0V	0V	2.8V

Q874

Pin No.	1	2	3	4
Voltage	9.6V	5.0V	0V	5.0V

DIGITAL PCB (PZ03)

Q401

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	4.9V	–	–	–	–	–	–	–	–	0V	–
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	–	0V	0V	–	–	0V	–	5.2V	0V	–	–
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	4.9V	2.5V	–	0V	–	–	–	0V	2.5V	2.5V	–
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	–	0V	–	0V	–	0V	–	–	–	0V	–

Q402

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	4.9V	–	–	–	–	–	–	–	–	0V	–
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	–	4.9V	0V	–	–	0V	–	–	0V	–	–
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	4.9V	2.5V	–	0V	–	–	–	0V	2.5V	2.5V	–
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	–	0V	–	0V	–	0V	–	–	–	0V	–

Q403

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	4.1V	4.9V	0V	4.9V	4.9V	0V	0V	4.9V	4.9V	0V	–
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	–	4.9V	–	–	4.9V	0V	0V	0V	0V	0V	0V
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	–	–	0V	2.5V	2.5V	0V	0V	0V	0V	–	2.5V
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	0.2V	0V	2.5V	2.5V	2.5V	4.9V	4.9V	2.4V	2.4V	0V	0V

Q404

Pin No.	1	2	3	4	5	6	7	8	9	10
Voltage	4.9V	0V	4.9V	–	–	2.5V	2.0V	0V	2.5V	0V
Pin No.	11	12	13	14	15	16	17	18	19	20
Voltage	–	–	4.9V	0V	–	–	–	0V	3.1V	0V
Pin No.	21	22	23	24	25	26	27	28	29	30
Voltage	2.7V	4.9V	0V	2.1V	2.6V	2.3V	2.5V	2.7V	2.7V	2.9V
Pin No.	31	32	33	34	35	36	37	38	39	40
Voltage	0.9V	4.9V	2.7V	2.7V	3.1V	0V	0V	0V	4.9V	2.5V
Pin No.	41	42	43	44	45	46	47	48	49	50
Voltage	2.5V	0V	4.9V	4.6V	4.8V	4.8V	0.5V	3.9V	2.8V	3.5V
Pin No.	51	52	53	54	55	56	57	58	59	60
Voltage	3.1V	3.4V	3.2V	3.2V	3.3V	2.9V	3.1V	2.4V	4.9V	0V
Pin No.	61	62	63	64	65	66	67	68	69	70
Voltage	0V	0V	4.9V	0V	0V	1.5V	4.8V	0V	4.8V	4.8V
Pin No.	71	72	73	74	75	76	77	78	79	80
Voltage	0V	4.6V	2.9V	2.3V	3.6V	3.5V	4.2V	3.6V	4.1V	3.3V

Q405

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	–	–	0V	0V	–	–	2.4V	–	2.4V	–	0V
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	–	4.9V	2.4V	2.4V	0V	–	–	0V	0V	0V	0V
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	0V	0V	0V	0V	2.4V	2.4V	0V	4.9V	4.9V	4.9V	4.9V
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	2.4V	2.4V	0V	0V	0V	–	–	4.9V	0V	–	–

Q406

Pin No.	17	18	1	2	
Voltage	1.6V	0V	3.1V	2.8V	
Pin No.	3	4	5	6	7
Voltage	2.3V	4.6V	0.6V	2.3V	2.5V
Pin No.	8	9	10	11	
Voltage	2.5V	4.9V	2.9V	2.3V	
Pin No.	12	13	14	15	16
Voltage	2.8V	2.1V	2.2V	0V	2.0V

Q409

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	4.6V	4.9V	0V	4.9V	–	4.9V	0V
Pin No.	9	10	11	12	13	14	15	16
Voltage	–	–	4.9V	0V	4.9V	–	0V	4.9V

Q410

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	1.0V	4.8V	0V	0V	0V	0V	4.8V	4.8V	0V	0V	0V
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	–	–	4.9V	4.9V	4.9V	0V	0V	0V	4.8V	4.8V	0V
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	0V	4.9V	0V	2.5V	0V	0V	0V	0V	2.5V	2.5V	0V
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	0V	0.2V	0V	4.9V	4.9V	2.5V	4.9V	–	–	–	0V

Q412

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	0V	4.6V	4.9V	0V	0V	0V	0V	–	0V	0V	3.1V	0V	3.1V	4.9V

Q423

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	1.9V	0.5V	2.4V	0V	2.5V	1.4V	3.5V	0V	1.3V	0V	4.7V
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	4.9V	0V	0V	3.4V	2.3V	0V	–	–	–	–	4.4V
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	3.5V	3.3V	3.7V	2.6V	2.0V	4.1V	4.1V	4.6V	4.8V	6V	0V
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	4.8V	4.9V	6V	0V	0V	0V	0V	0V	6V	2.5V	0.5V

Q441

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	2.4V	4.9V	2.1V	1.9V	1.7V	0V	4.9V	4.9V	4.9V	2.3V	–
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	0V	2.5V	2.6V	–	2.0V	0V	0V	0V	–	–	4.9V
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	4.9V	4.9V	6V	2.5V	0V	0V	–	4.9V	6V	0V	0V
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	4.9V	4.7V	0V	4.9V	4.9V	0V	0V	0V	6V	6V	3.2V

Q442

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	0V	–	0V	–	0V	–	0V	2.6V	2.5V	2.5V	2.5V	0V	4.9V	4.9V

Q443

Pin No.	1	2	3	4	5	6	7	8
Voltage	–	4.5V	2.2V	0V	0V	0V	4.9V	–

Q444

Pin No.	1	2	3	4	5	6	7	8
Voltage	–	–	0V	2.4V	0V	0.4V	0.4V	0V
Pin No.	9	10	11	12	13	14	15	16
Voltage	1.0V	–	1.0V	4.2V	–	0V	–	4.9V

Q411

Pin No.	E	C	B
Voltage	4.9V	4.9V	0V

Q421

Pin No.	E	C	B
Voltage	3.5V	4.7V	4.2V

Q422

Pin No.	E	C	B
Voltage	1.4V	0V	0.7V

READ/WRITE (PW03)

Q101

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	2.7V	2.1V	2.1V	4.9V	0.5V	2.4V	2.9V	0V	0.6V	1.6V	0.6V
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	0.6V	0.6V	0.6V	0.6V	0V	0.6V	0.6V	0.6V	0.6V	4.9V	0.7V
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	2.1V	2.6V	2.4V	0.7V	2.7V	0V	0V	2.7V	0.7V	2.4V	2.6V
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	2.1V	3.2V	4.9V	2.0V	–	–	–	–	–	–	3.6V

Q151

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12
Voltage	2.6V	1.9V	0V	5.0V	0V	0V		5.0V		5.0V	0V	0V
Pin No.	13	14	15	16	17	18	19	20	21	22	23	24
Voltage	1.0V	4.1V	4.5V	4.1V	4.5V	4.1V	5.0V	4.1V	0V	4.1V	4.1V	4.1V

Q181

Pin No.	1	2	3	4	5	6	7	8
Voltage	3.7V	0V	0V	0V	1.8V	0V	0V	0V
Pin No.	9	10	11	12	13	14	15	16
Voltage	4.8V	3.8V	0.3V	3.8V	5.0V	3.7V	3.1V	5.0V

Q182

Pin No.	1	2	3	4	5	6	7	8
Voltage	5.0V	2.0V	–	1.9V	3.1V	1.4V	3.6V	0V
Pin No.	9	10	11	12	13	14	15	16
Voltage	2.5V	0V	5.0V	0V	0.2V	–	0.3V	5.0V

Q183

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	1.4V	0.3V	4.8V	6V	0V	–	0V	3.9V	2.1V	1.9V	2.4V	2.4V	5.0V	5.0V

Q184

Pin No.	1	2	3	4	5	6	7	8
Voltage	5.0V	2.5V	5.0V	0V	0V	5.0V	5.0V	0V
Pin No.	9	10	11	12	13	14	15	16
Voltage	2.8V	5.0V	–	–	–	–	0.3V	5.0V

Q185

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	1.4V	3.8V	0V	4.4V	0.3V	0.3V	0V	1.4V	4.4V	0.5V	4.4V	5.0V	0V	5.0V

Q102

Pin No.	E	C	B
Voltage	6.6V	7.9V	7.2V

Q103

Pin No.	E	C	B
Voltage	5.9V	7.9V	6.6V

Q104

Pin No.	E	C	B
Voltage	5.9V	7.9V	6.6V

Q105

Pin No.	E	C	B
Voltage	4.9V	7.8V	4.3V

Q106

Pin No.	E	C	B
Voltage	1.4V	4.3V	2.0V

Q153

Pin No.	E	C	B
Voltage	0V	0.6V	0V

Q180

Pin No.	E	C	B
Voltage	0V	0V	0V

Q190

Pin No.	E	C	B
Voltage	0V	3.0V	1.3V

AD/DA PCB (PA03)

Q201

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	0V	0V	0V	4.9V	-5.0V	0V	0V	–	0V	0V	0V	0V	0V	2.4V
Pin No.	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Voltage	2.4V	2.0V	4.8V	4.8V	0V	2.3V	–	2.3V	2.4V	0V	4.8V	0V	0V	-2.6V

Q202

Pin No.	1	2	3	4	5	6	7	8	9	10
Voltage	0V	2.4V	2.4V	2.4V	2.4V	2.4V	2.4V	2.4V	2.4V	0V
Pin No.	11	12	13	14	15	16	17	18	19	20
Voltage	2.4V	2.4V	2.4V	2.4V	2.4V	2.4V	2.4V	2.5V	2.4V	4.8V

Q203

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	2.4V	2.4V	3.6V	3.6V	2.4V	2.4V	0V	2.4V	2.4V	2.4	–	0V	0V	4.9V

Q204

Pin No.	IN	OUT	GND
Voltage	9.6V	5.0V	0V

Q205

Pin No.	IN	OUT	GND
Voltage	-8.9V	-5.0V	0V

Q221

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	-11.5V	0V	0V	0V	11.4V

Q222

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	-11.5V	0V	0V	0V	11.4V

Q301

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	0V	0V	–	0V	0V	0V	0V	0V	3.9V	0.6V	–
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	4.8V	0V	2.4V	–	–	0V	4.8V	2.4V	2.4V	0V	2.4V
Pin No.	23	24	25	26	27	28	29	30	31	32	33
Voltage	2.4V	2.4V	0V	2.4V	4.9V	0V	4.8V	2.4V	2.4V	0V	2.4V
Pin No.	34	35	36	37	38	39	40	41	42	43	44
Voltage	2.4V	2.4V	0V	2.4V	2.4V	4.8V	–	–	2.3V	2.3V	2.3V

Q302

Pin No.	1	2	3	4	5	6	7	8	9	10	11
Voltage	0V	2.4V	0V	–	0V	–	–	–	0V	0V	4.9V
Pin No.	12	13	14	15	16	17	18	19	20	21	22
Voltage	0.8V	0V	0V	3.3V	4.9V	–	–	–	2.4V	2.5V	0V

Q303

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	-11.8V	0V	0V	0V	11.8V

Q304

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	0V	0V	-11.8V	0V	0V	0V	11.8V

Q305

Pin No.	1	2	3	4	5	6	7	8
Voltage	-0.1V	-0.1V	-0.1V	-11.8V	-0.1V	0V	0V	11.8V

Q306

Pin No.	1	2	3	4	5	6	7	8
Voltage	-0.1V	-0.1V	-0.1V	-11.8V	-0.1V	0V	0V	11.8V

Q315

Pin No.	1	2	3	4	5	6	7	8
Voltage	0V	4.9V	2.3V	0V	2.3V	5.1V	-3.5V	-4.2V
Pin No.	9	10	11	12	13	14	15	16
Voltage	0V	0V	0V	0V	0V	0V	0V	-4.8V
Pin No.	17	18	19	20	21	22	23	24
Voltage	4.8V	0V	0V	0V	0V	0V	0V	0V
Pin No.	25	26	27	28	29	30	31	32
Voltage	-4.2V	-3.5V	5.1V	2.3V	0V	2.3V	4.9V	-5.0V

Q313

Pin No.	D	G	S
Voltage	0.1V		0V

Q314

Pin No.	D	G	S
Voltage	0.1V		0V

Q316

Pin No.	E	C	B
Voltage	5.1V	11.8V	5.6V

Q317

Pin No.	E	C	B
Voltage	-5.1V	-11.8V	-5.6V

Q318

Pin No.	E	C	B
Voltage	0V	-6.1V	1.1V

Q206

Pin No.	E	C	B
Voltage	4.9V	0V	4.9V

Q307

Pin No.	D	G	S
Voltage			0V

Q308

Pin No.	D	G	S
Voltage			0V

Q309

Pin No.	E	C	B
Voltage	0V	-11.9V	1.2V

Q311

Pin No.	D	G	S
Voltage	0.1V		0V

Q312

Pin No.	D	G	S
Voltage	0.1V		0V

TRAY WIRE CONNECTION SERVO PCB (PM03)

QD01

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	2.6V	2.5V	2.5V	2.5V	2.4V	2.4V	1.8V	1.3V	1.3V	0V	2.5V	2.5V	2.5V	2.5V

QS01

Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Voltage	0V	3.3V	3.3V	3.3V	3.2V	0V	0V	3.2V	3.2V	3.2V	0V	0V	3.4V	3.4V

QS11

Pin No.	E	C	B
Voltage	7.3V	13.3V	7.8V

QS02

Pin No.	E	C	B
Voltage	0V	0V	12.2V

QS03

Pin No.	E	C	B
Voltage	0V	12.2V	0.5V

FRONT PCB (PD03)

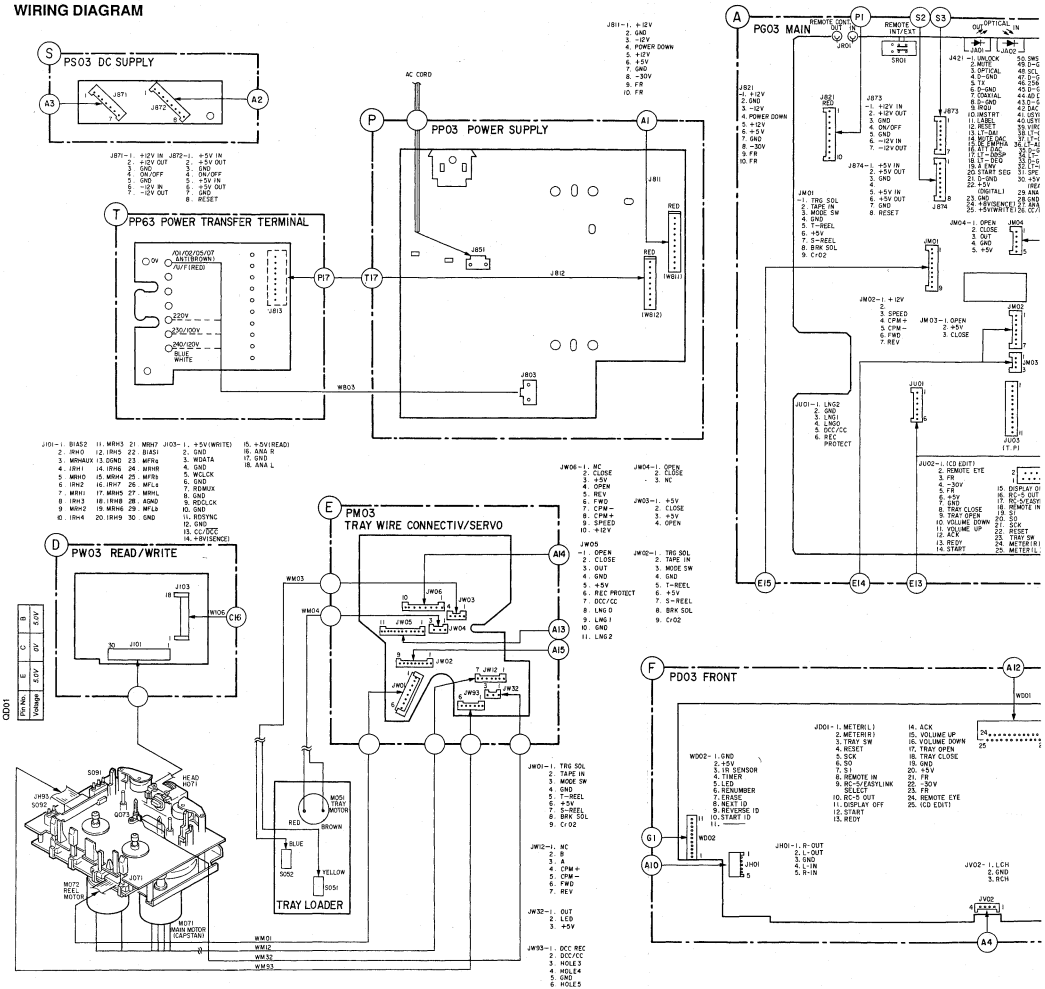
QD01

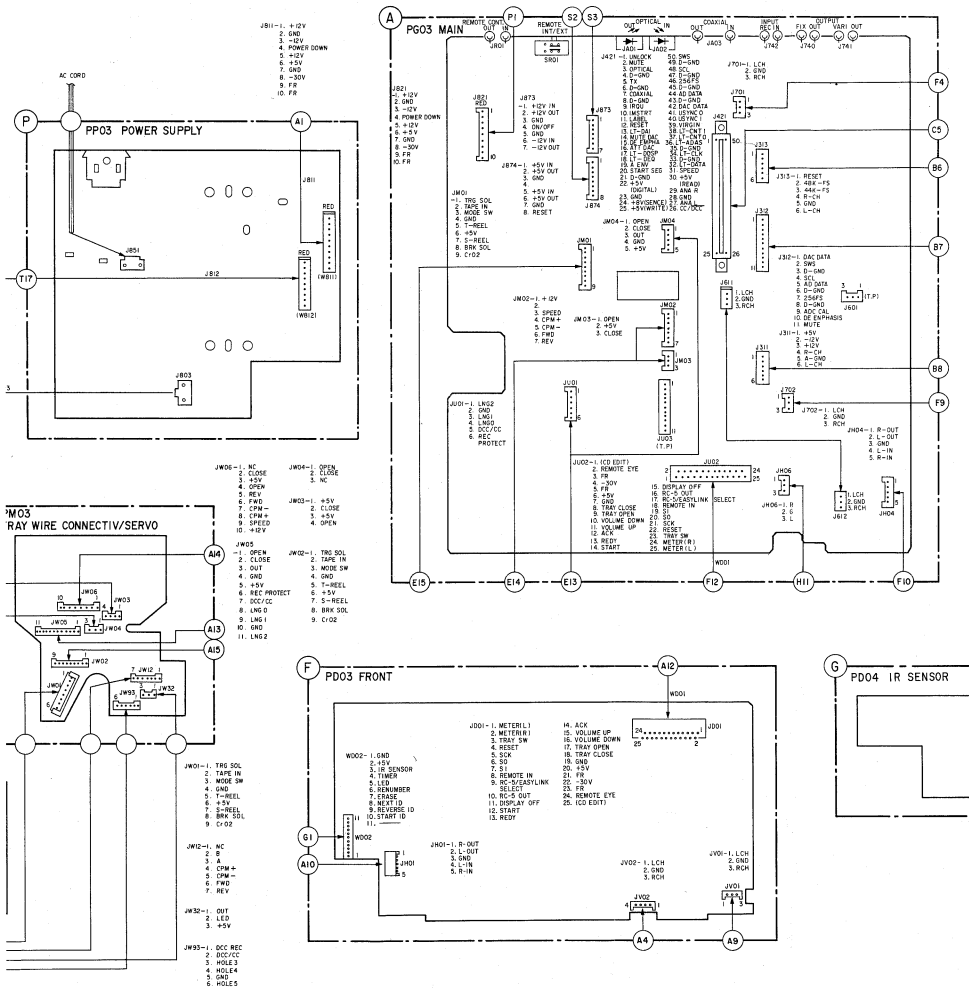
Pin No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Voltage	4.5V	5.0V	5.0V	5.0V	5.0V	17	18	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	0V	35
Voltage	-27.5V	-29.3V	-29.3V	-30.8V	-31.0V	-30.8V	-31.0V	-30.8V	-28.3V	-27.8V	-27.1V	-26.5V	-27.2V	-27.2V	-27.2V	-27.2V	-27.2V	-27.2V	-27.2V	-27.2V
Pin No.	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
Voltage	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V
Pin No.	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
Voltage	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V	-28.4V
Pin No.	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80
Voltage	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V	5.0V
Pin No.	81	82	83	84	85	86	87	88	89	90	91	92	93	94						
Voltage	4.6V	4.5V	4.5V	4.5V	5.0V	0V	0V	4.5V	4.5V	4.5V	4.5V	4.5V	2.9V	0V						

QD01

Pin No.	B	C	E
Voltage	5.0V	0V	5.0V

WIRING DIAGRAM





	Carbon film 0.125 W or 0.2 W	70°C	5%
	Carbon film 0.25 W or 0.33 W	70°C	5%
	Metal film 0.25 W or 0.33 W	70°C	5%
	Carbon film 0.5 W	70°C	5%
	Carbon film 0.67 W	70°C	5%
	Carbon film 1 W or 1.15 W	70°C	5%

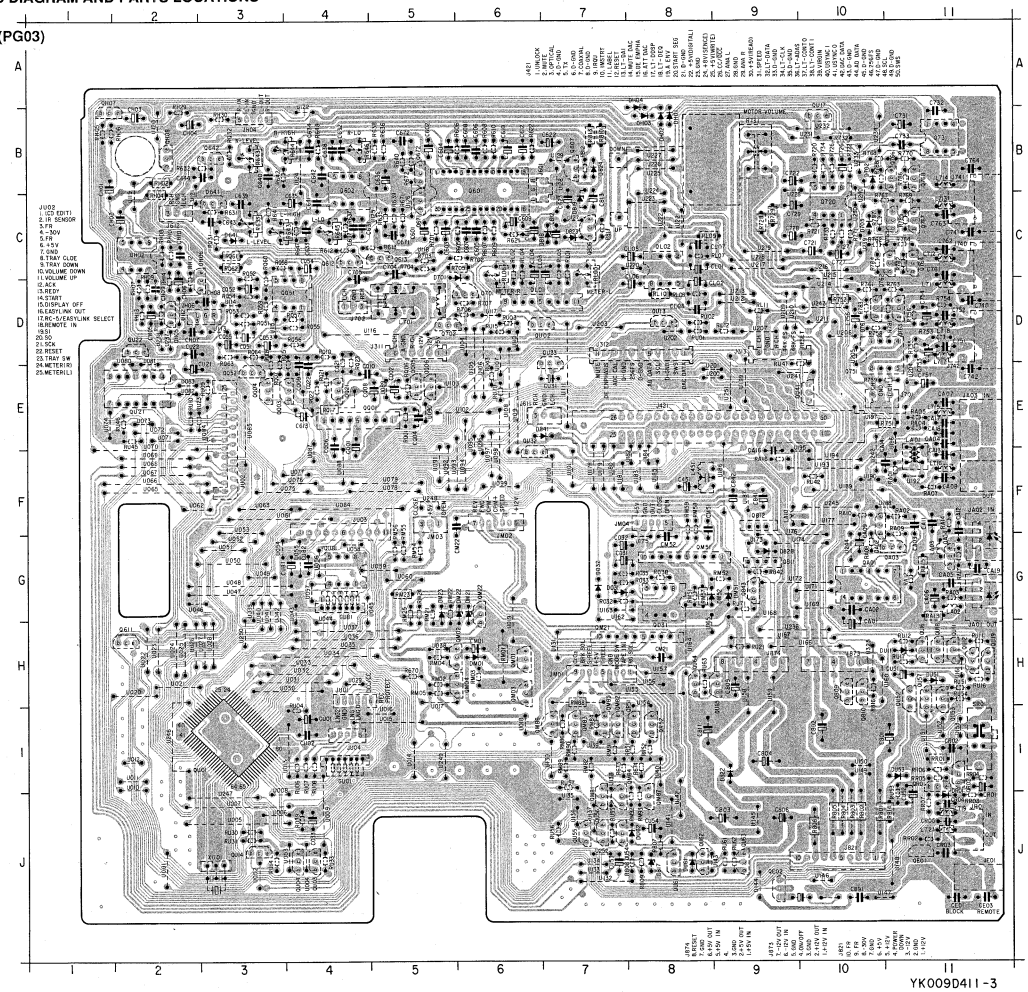
Ⓒ Chip component

	Ceramic plate Tuning ⩽ 120 pF NP.0	2%
	Others	−20/+80%
	Polyester flat foil	10%
	Metalized polyester flat film	10%
	Polyester flat foil small size (Mylar)	10%
	Polysterene film/foil	1%
	Tubular ceramic	
	Miniature single	
	Subminiature tantalum	± 20%

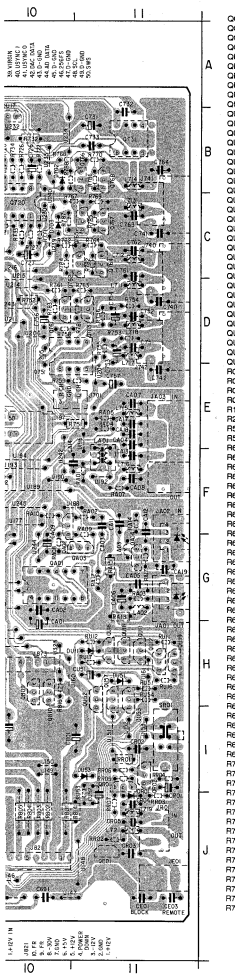
*a	= 2.5 V
b	= 3.15 V or 4 V
c	= 6.3 V
d	= 10 V
e	= 16 V
f	= 25 V
g	= 40 V
h	= 63 V
i	= 100 V
l	= 125 V
m	= 150 V
n	= 160 V
q	= 200 V
r	= 250 V
s	= 300 V
t	= 350 V
u	= 400 V
v	= 500 V
w	= 630 V
x	= 1000 V
A	= 1.6 V
B	= 6 V
C	= 12 V
D	= 15 V
E	= 20 V
F	= 35 V
G	= 50 V
H	= 75 V
I	= 80 V

SCHEMATIC DIAGRAM AND PARTS LOCATIONS

MAIN PCB (PG03)



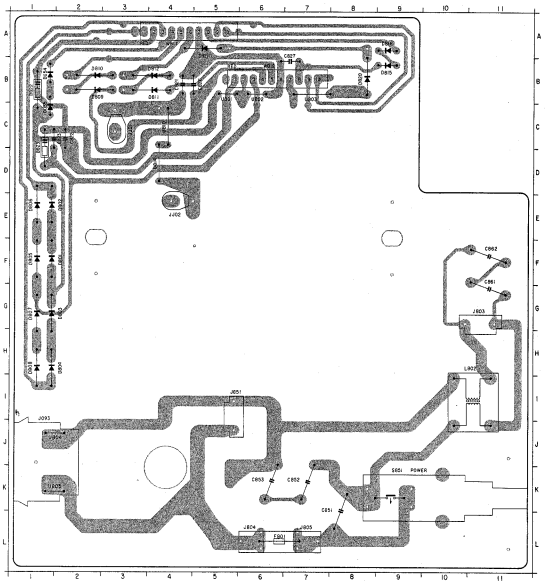
YK009D411-3



YK009D411-3

QQ06	E5	R733	C10	RM55	G5	U007	J3	J673	H10	CH05	D2	C031	G7	U101	F7
QQ21	E4	R734	B10	RM56	G5	U008	J3	J674	H9	CH06	D2	C032	G7	U102	E8
QQ51	D4	R752	D10	RM57	G8	U009	J4	JA01	G11	CH07	D2	C033	J4	U103	E5
QQ52	E3	R753	D11	RM58	F8	U010	I2	JA02	F11	CH08	D3	C451	F6	U104	D6
QR01	I11	R754	D11	RM59	F8	U011	I2	JA03	E11	CH09	D2	C601	C5	U105	E6
QR02	I11	R755	D11	RM62	I7	U012	I2	JE01	J11	CH10	C2	C602	B5	U106	E6
QR51	I8	R756	D11	RM64	I7	U013	I4	JH04	B3	CL01	C8	C603	C5	U107	D6
QR52	I8	R758	D10	RM66	I7	U014	I5	JH06	D3	CL02	D8	C604	B5	U108	E6
QU01	I3	R761	D10	RM68	H7	U015	I5	JM01	H7	CL03	C7	C605	C6	U109	E8
QU02	D6	R762	C10	RM69	I7	U016	I5	JM02	F6	CL04	C6	C606	B6	U110	D6
QU03	J4	R763	D11	RM90	I7	U017	H5	JM03	F5	CL05	C8	C607	C6	U111	E7
QU04	J4	R764	D10	RM91	I7	U018	I6	JM04	F6	CL06	D8	C608	B6	U112	D2
QU11	H11	R767	C10	RM92	J8	U019	G6	JR01	J11	CL07	C8	C609	C6	U113	D3
QU12	H11	R768	B10	RM93	J8	U020	H2	JU01	H4	CL08	B8	C610	B6	U115	D3
QU13	D8	R769	C11	RQ01	E5	U021	H2	JU02	F3	CM01	H6	C611	C6	U116	D5
QU14	J3	R770	B11	RQ03	E3	U022	H2	JU03	F4	CM21	H6	C612	B8	U117	D6
QU16	H11	R771	C10	RQ06	E5	U023	H2	JU04	I4	CM22	F5	C613	E4	U118	C5
QU17	B10	R781	D10	RQ07	E3	U024	H2	L451	F8	CM51	F8	C622	B7	U119	C2
QU18	H11	R782	C11	RQ10	D4	U025	H2	L701	D5	CM52	G8	C623	C7	U120	B2
QU19	H11	R783	D10	RQ15	E4	U026	H2	L711	D11	CQ01	E4	C631	C4	U121	C2
QU21	E2	R784	C10	RQ16	E4	U027	H3	L712	C11	CQ02	E5	C632	B4	U124	C8
QU22	D8	R785	C11	RQ21	D4	U028	H3	L713	C11	CQ04	E5	C633	C4	U125	B4
QU32	F6	R786	B11	RQ21	E4	U028	H3	L714	B11	CQ06	E4	C634	B4	U126	C5
QU33	D5	R787	C10	RQ22	E4	U029	H4	L716	E11	CQ08	E5	C635	C4	U127	C7
QU41	E10	R788	B10	RQ23	D4	U030	H4	L716	F11	CQ09	E4	C636	B5	U128	B7
QU52	H11	R801	J10	RQ23	E4	U031	H4	L717	D11	CQ10	E4	C637	C4	U129	B7
QU53	H11	R802	J10	RQ31	C3	U032	H4	L718	D11	CQ22	E4	C638	B4	U129	B7
QU54	J7	R803	J10	RQ32	B3	U033	H4	L719	J11	CQ51	D3	C639	C3	U130	I7
QU55	J7	R804	J10	RQ51	D3	U034	H4	L721	J11	CQ52	D3	C640	B3	U131	H7
QU56	J7	R805	J10	RQ52	C3	U035	H4	LA01	F11	CQ53	D3	C641	C4	U132	J7
QU57	H11	R806	J10	RQ53	D3	U036	H4	LA02	G11	CQ54	C4	C642	B4	U133	J7
QU61	J8	R807	J8	RQ54	D3	U037	H4	LA03	G11	CQ55	D3	C643	C3	U134	J7
QU62	J8	R808	J8	RQ55	D4	U038	H5	LA10	F9	CR01	I11	C644	B3	U135	J7
QU63	J9	R809	J8	RQ56	D4	U039	G3	QC01	G8	CR02	I11	C671	C5	U136	J7
QU64	H8	R810	B7	RQ57	D4	U040	G3	Q601	B6	CR03	J11	C672	B5	U137	J7
QU65	H9	R811	C7	RQ58	C3	U041	G3	Q602	B4	CR04	J11	C704	C5	U138	J7
QU81	G4	R812	B7	RQ59	D3	U042	G3	Q611	H2	CR05	J11	C721	C10	U139	I7
R032	G7	R813	B7	RQ60	C3	U043	G4	Q612	C4	CU01	I4	C722	B9	U140	I8
R033	G7	R814	J11	RQ61	C3	U044	H4	Q613	C5	CU02	I4	C726	B10	U141	J8
R035	G7	R815	H10	RQ62	C3	U045	G4	Q641	C3	CU21	E2	C727	C10	U142	J8
R038	G8	R842	G9	RQ63	D3	U046	G2	Q642	B3	CU22	D2	C728	C9	U143	J8
R196	E11	RA01	F11	RQ64	D3	U047	G3	Q671	C5	CU31	E7	C729	C9	U144	J9
R204	E11	RA02	F11	RR01	I8	U048	G3	Q672	B5	CU51	H11	C731	B11	U145	J9
R571	E11	RA03	G11	RR02	J11	U049	G3	Q701	D6	CU52	J11	C732	B11	U146	J10
R579	E11	RA04	E11	RR03	J11	U050	G3	Q702	D5	CU54	J8	C733	B11	U147	J10
R605	C6	RA05	E11	RR04	I11	U051	G3	Q720	C10	CU57	J7	C740	D11	U148	J11
R606	B6	RA07	F11	RR05	I11	U052	G3	Q731	B11	CU81	G4	C741	C11	U149	I10
R607	C6	RA08	G10	RR06	I11	U053	F3	Q751	D10	CU82	G4	C742	E11	U150	I10
R608	B6	RA09	G11	RR07	J11	U054	G3	Q761	D10	DD31	G7	C750	D11	U151	I11
R609	C6	RA10	F10	RR51	I8	U055	G4	Q762	C11	DD32	G7	C752	D11	U152	I11
R610	B6	RA12	G11	RR52	I8	U056	G4	Q763	D11	DE41	C3	C753	D11	U153	I11
R612	C4	RA13	G11	RU01	D8	U057	G4	Q764	C11	D701	D6	C754	D11	U154	H8
R613	C5	RA14	F11	RU02	D8	U058	G4	Q765	C11	D702	B10	C756	D10	U155	H8
R621	C6	RA15	G11	RU03	D6	U059	G5	Q766	B11	D703	C10	C757	E11	U156	H8
R622	B6	RA16	F9	RU04	I4	U060	G5	Q767	C11	D817	J8	C761	C11	U157	H8
R631	D3	RA17	G11	RU05	I4	U061	F3	Q768	B11	D818	C7	C762	C11	U158	H9
R632	B3	RH02	B2	RU07	I4	U062	F2	Q806	C7	D819	C7	C763	C11	U159	H9
R633	C3	RH05	B1	RU08	I4	U063	F3	Q807	B7	D822	I9	C764	B11	U160	H10
R635	C3	RH06	B1	RU09	I4	U064	F4	Q809	H10	D823	C7	C801	I11	U161	H11
R636	B5	RH07	D2	RU10	E2	U065	F2	Q810	H10	D824	B7	C802	I10	U162	G7
R637	C4	RH08	C2	RU11	H11	U068	F2	Q811	G9	D828	G9	C803	J9	U163	G7
R638	C5	RH09	D2	RU12	H11	U067	F2	Q812	F9	D841	E7	C804	I9	U164	H8
R639	C5	RH10	C2	RU14	J3	U068	F2	Q843	G9	DH01	B8	C808	J9	U165	H8
R640	B5	RH11	D2	RU15	D6	U069	F2	QA01	G10	DH02	B8	C809	H9	U166	H10
R641	C5	RH12	D2	RU16	H11	U070	E2	QA02	F10	DH03	B8	C811	I8	U167	H9
R642	B3	RH13	D2	RU17	H11	U071	E2	QA03	G11	DH04	B8	C812	C7	U168	G9
R643	B3	RH14	D2	RU21	H9	U072	E2	QA04	G11	DM01	H6	C813	C7	U169	G10
R643	C4	RH29	B2	RU23	E3	U073	E2	QE01	J11	DM21	G6	C841	F9	U171	G10
R644	B4	RH30	B3	RU24	E1	U074	E1	QE02	J9	DM23	G6	C842	F9	U172	G8
R645	C4	RL01	C7	RU31	J3	U075	F3	QH02	C2	DM23	G5	C891	J10	U173	G9
R646	B4	RL02	C8	RU33	J4	U076	F4	QH05	D2	DM51	G9	CA01	H10	U174	G9
R647	C4	RL03	C7	RU38	J4	U077	F4	QH06	C3	DM52	G8	CA02	G10	U175	G8
R648	B4	RL04	C6	RU42	F10	U078	F5	QH07	B1	DM52	G8	CA03	F11	U176	G9
R670	H5	RL05	C7	RU43	E6	U079	F5	QH08	B2	DR01	J11	CA04	E11	U177	F10
R671	C5	RL06	C6	RU45	D2	U080	D2	QL01	D6	DU11	H11	CA05	G11	U178	F7
R672	B5	RL07	C8	RU46	E2	U081	D2	QL02	C8	DU51	H11	CA06	G11	U179	F7
R673	I7	RL08	D8	RU51	H11	U082	E2	QM01	H6	DU53	I11	CA07	E11	U180	F7
R674	I8	RL09	D8	RU53	J11	U083	E2	QM02	H5	DU61	J8	CA08	F11	U181	F7
R701	C5	RL10	D8	RU54	H11	U084	E3	QM03	H6	DU62	J8	CA09	G10	U182	F8
R702	C6	RL11	D9	RU55	J7	U085	E3	QM04	H5	GU01	I4	CA11	F11	U183	F8
R703	C5	RL12	D9	RU56	J9	U087	F4	QM21	H7	GU81	G4	CA12	F11	U184	F8
R704	C5	RM01	H6	RU57	I7	U088	F4	QM22	G6	J311	D5	CA13	F11	U185	F8
R705	C6	RM02	H5	RU61	J9	U089	E5	QM51	G8	J312	D8	CA14	F11	U186	F9
R706	D6	RM03	H5	RU62	J9	U090	E5	QM81	J7	J313	D9	CA16	F9	U187	F9
R707	D6	RM04	H5	RU63	H8	U091	F5	QM82	I7	J421	E8	CA17	E11	U188	F10
R720	B10	RM05	H5	RU70	E6	U092	F5	QM83	I7	J601	B7	CA18	E11	U189	F10
R721	C10	RM21	G5	RU71	G9	U093	F5	QM84	J7	J611	E7	CA19	G11	U190	F10
R722	B10	RM22	G5	SR01	I11	U094	F6	QM85	I7	J612	C2	CE01	J11	U192	F10
R726	B10	RM23	G5	U001	J2	U095	E6	QM86	I7	J701	E10	CE03	J11	U193	F10
R727	C10	RM24	G5	U001	J4	U096	E6	QM87	J8	J702	D4	CH01	B1	U194	F10
R728	C9	RM25	G5	U002	J3	U097	F6	QQ01	E4	J740	C11	CH02	C2	U195	F10
R729	C9	RM51	G8	U003	J4	U098	F6	QQ03	E4	J741	B11	CH03	B2	U197	E10
R731	B9	RM52	G9	U005	J3	U099	F6	QQ04	E3	J742	D11	CH04	B2	U199	E9
R732	B10	RM54	G5	U006	J3	U100	F7	QQ05	E5	J821	J10	CH04	C2	U200	E9

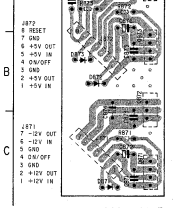
POWER SUPPLY PCB (PP03)



YN009D221-3

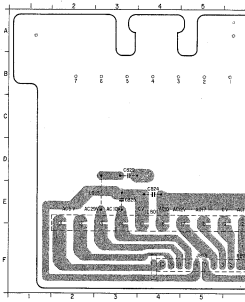
B822	B1	C671	C2	C824	E4										
B823	D1	C672	C2	C825	E3										
C821	B4	C673	C2	C829	D3										
C822	C2	C674	A2	J813	F5										
C823	C1	C675	B2	L801	E4										
C826	B4	C676	A2	U813	E3										
C827	B7	C677	A2												
C851	K8	C678	A2												
C852	K7	C679	A1												
C853	K8	D671	C2												
C861	G11	D672	B2												
C862	F11	D673	B1												
D801	F1	J671	C2												
D802	E1	J672	B2												
D803	G1	Q671	C2												
D804	H1	Q672	B2												
D805	F1	Q673	B2												
D806	E1	R671	C2												
D807	G1	R672	A2												
D808	H1	R673	A1												
D809	B2														
D810	B2														
D811	B4														
D812	B4														
D815	B9														
D816	A9														
D820	B8														
D821	A5														
DL54	B1														
DU55	C1														
F801	L6														
J093	J1														
J804	L6														
J805	L7														
J851	I5														
J861	G11														
JU01	C3														
JU02	E4														
L802	I11														
S851	K9														
U801	B5														
U802	B6														
U803	B7														
U804	J1														
U805	K1														
U810	C4														
U814	D4														
W811	A4														
W812	B6														

DC SUPPLY PCB (PS03)

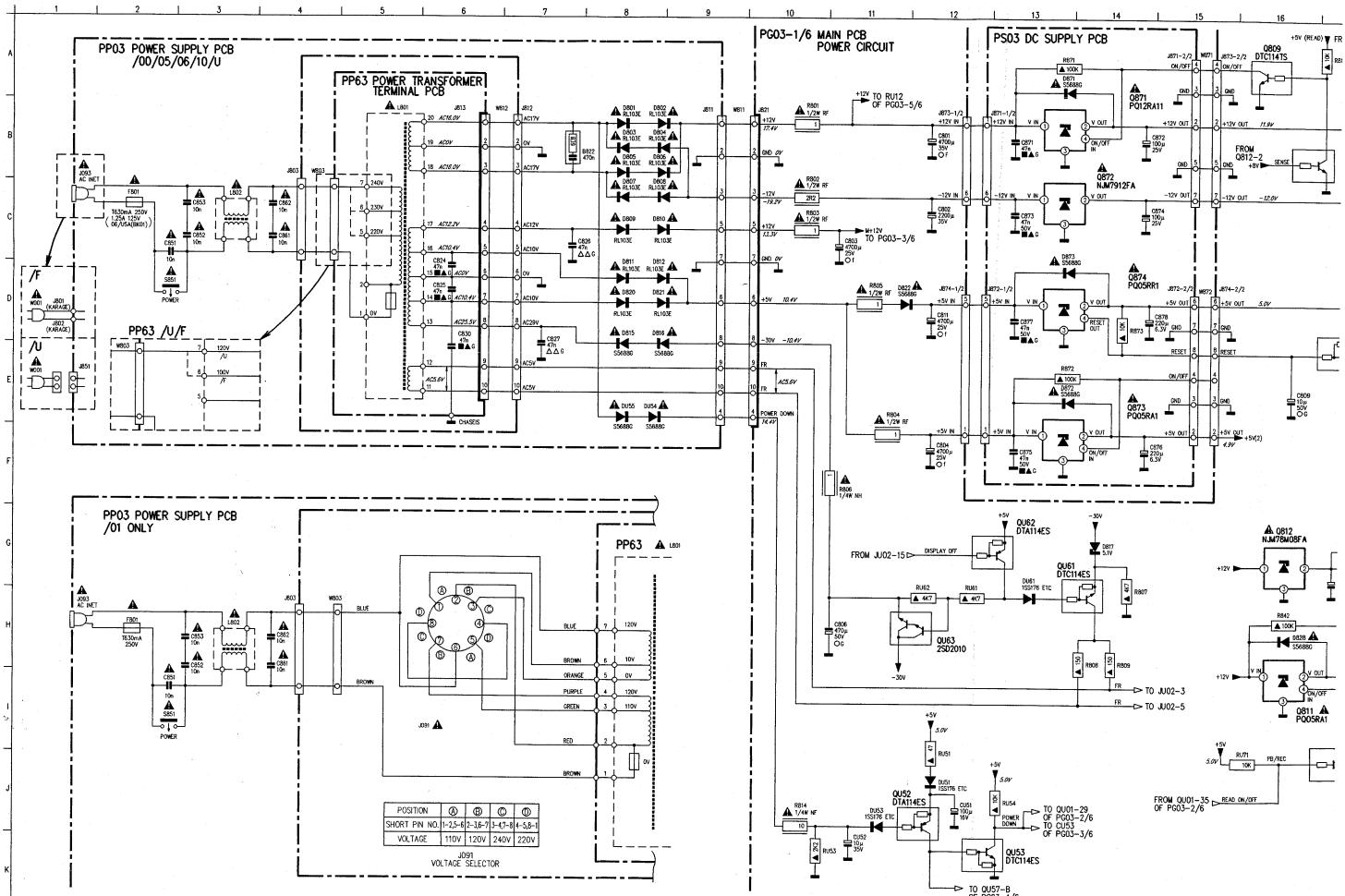


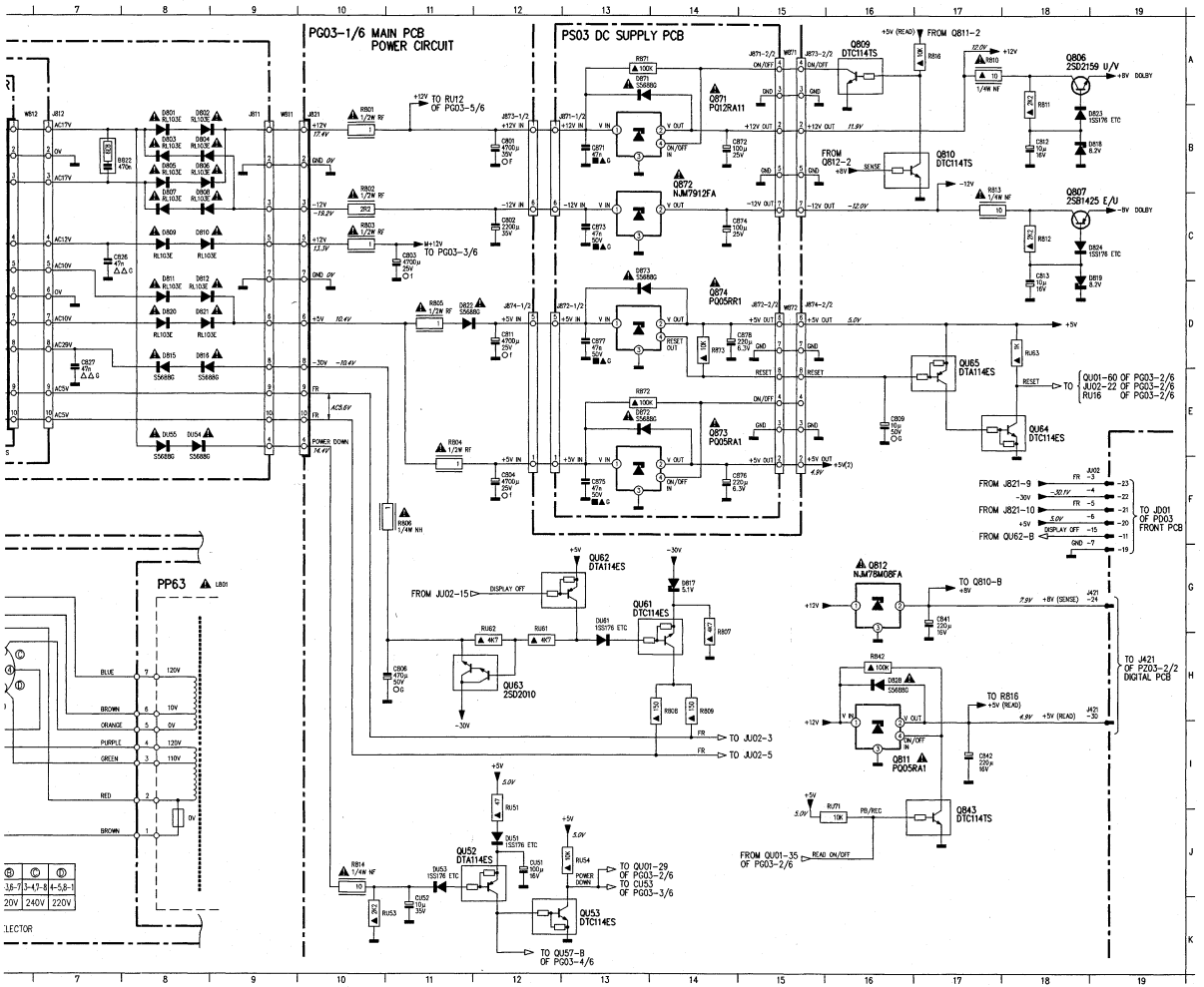
YK009D412-3

POWER TRANSFORMER TERMINAL PCB (PP63)

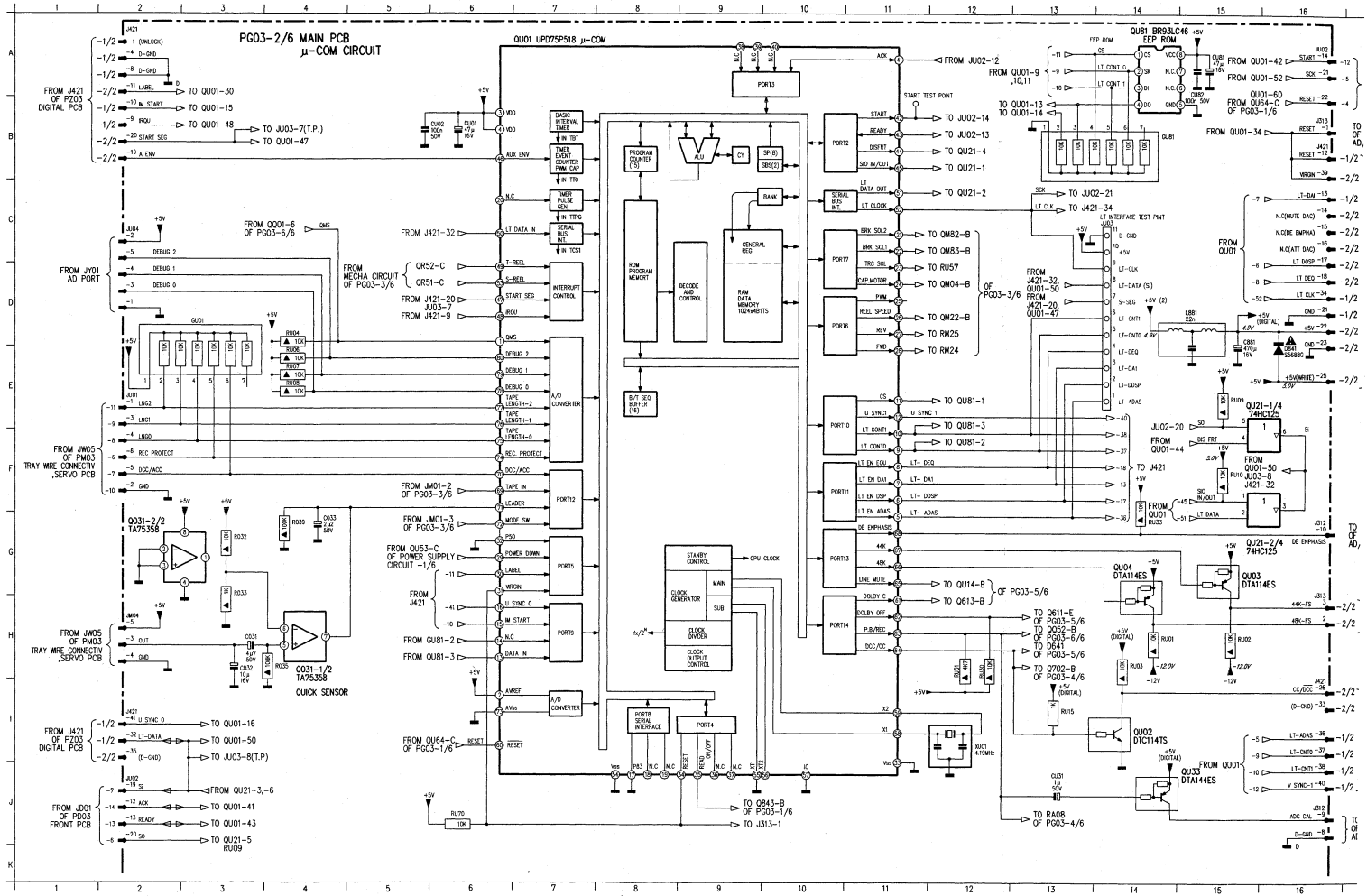


YN009D222-3


PP03 POWER SUPPLY PCB
/00/05/06/10/U
PP63 POWER TRANSFORMER
TERMINAL PCB
PG03-1/6 MAIN PCB
POWER CIRCUIT
PS03 DC SUPPLY PCB
PP63 /U/F
/F
/U
PP03 POWER SUPPLY PCB
/01 ONLY
PP63
POWER
CHASSIS
VOLTAGE SELECTOR
POSITION
SHORT PIN NO.
VOLTAGE
FROM JU02-15
TO JU02-3
TO JU02-5
TO QU01-29 OF PG03-2/6
TO QU53 OF PG03-3/6
TO QU57-B OF PG03-4/6
FROM QU01-35 OF PG03-2/6
TO PG03-5/6
TO PG03-3/6



B822	B7	J421-30	I19
C801	B12	J801	D1
C802	C12	J803	C4
C803	C11	J803	H4
C804	F12	J811	B9
C805	H11	J812	B7
C809	E16	J813	B6
C811	D12	J821	B10
C812	B18	J851	C1
C813	G18	J851	H1
C824	D6	J871	B12
C825	D6	J872	D12
C826	D7	J873	B12
C827	E7	J874	D12
C830	6E	JU02-15	F19
C841	G17	JU02-3	F19
C842	I17	JU02-4	F19
C851	C2	JU02-5	F19
C851	I2	JU02-6	F19
C852	C2	L801	B5
C852	H2	L801	G8
C853	C2	L802	C3
C853	H2	L802	H3
C861	C4	Q806	A18
C861	H4	Q807	C18
C862	C4	Q809	A16
C862	H4	Q810	B16
C871	B13	Q811	I16
C872	B14	Q812	G16
C873	C13	Q843	J17
C874	C14	Q871	B13
C875	F13	Q872	C13
C876	F14	Q873	F13
C877	D13	Q874	D13
C878	D14	QU52	J12
CU51	J12	QU53	K12
CU52	K11	QU61	G14
D801	B8	QU62	G13
D802	B8	QU63	H12
D803	B8	QU64	E16
D804	B8	QU65	E17
D805	B8	R801	B10
D806	B8	R802	C10
D807	C8	R803	C10
D808	C8	R804	F11
D809	C8	R805	D11
D810	C8	R806	F11
D811	D8	R807	G14
D812	D8	R808	H14
D815	D8	R809	H14
D816	D8	R810	A17
D817	G14	R811	A18
D818	B18	R812	C18
D819	C18	R813	C17
D820	D8	R814	J10
D821	D8	R816	A17
D822	D11	R842	H16
D823	B18	R871	A13
D824	C18	R872	E13
D828	H16	R873	D14
D871	A13	RU51	I12
D872	E13	RU53	K10
D873	D13	RU54	J13
DU51	J12	RU61	H12
DU53	J11	RU62	H12
DU54	E8	RU63	D18
DU55	E8	RU71	J16
DU61	H13	S851	D2
F801	C2	S851	I2
F801	H2	W001	D1
J091	H6	W001	E1
J093	C1	W803	E2
J093	H1	W803	H4
J421-24	G19		


PG03-2/6 MAIN PCB
μ-COM CIRCUIT
QU01 UPD75P518 μ-COM
QU81 BR93LC46 EEP ROM
FROM J421 OF PZ03 DIGITAL PCB
TO QU01-30
TO QU01-15
TO QU01-48
TO JU03-7(T.P.)
TO QU01-47
FROM JY01 AD PORT
FROM MECHA CIRCUIT OF PG03-3/6
FROM JW05 OF PM03 TRAY WIRE CONNECTIV ,SERVO PCB
Q031-2/2 TA75358
Q031-1/2 TA75358
QUICK SENSOR
FROM JD01 OF PD03 FRONT PCB
TO QU01-16
TO QU01-50
TO JU03-8(T.P)
FROM QU21-3,-6
TO QU01-41
TO QU01-43
TO QU21-5 RU09
FROM JU02-12
FROM QU01-9 ,10,11
TO QU01-13 TO QU01-14
FROM QU01-42
FROM QU01-52
FROM QU64-C OF PG03-1/6
FROM QU01-34
TO JU02-14
TO JU02-13
TO QU21-4
TO QU21-1
TO QU21-2
TO JU02-21
TO J421-34
TO QM82-B
TO QM83-B
TO RU57
TO QM04-B
TO QM22-B
TO RM25
TO RM24
OF PG03-3/6
TO QU81-1
TO QU81-3
TO QU81-2
FROM J421-32 FROM J421-50 QU01-51
FROM J421-20, QU01-47
FROM QU01-50 JU03-8 J421-32
FROM QU01-44
TO J421
FROM QU01 RU33
TO QU21-1/4 74HC125
TO QU21-2/4 74HC125
QU03 DTA114ES
QU04 DTA114ES
QU02 DTC114TS
QU33 DTA144ES
TO QU14-B
TO Q613-B
OF PG03-5/6
TO Q611-E OF PG03-5/6
TO Q652-B OF PG03-6/6
TO Q641 OF PG03-5/6
TO Q702-B OF PG03-4/6
TO RA08 OF PG03-4/6
TO Q843-B OF PG03-1/6
TO J313-1
TO JU02-12
TO JU02-14
TO JU02-13
TO QU21-4
TO QU21-1
TO QU21-2
TO JU02-21
TO J421-34
TO QU81-1
TO QU81-3
TO QU81-2
TO QU14-B
TO Q613-B
TO Q611-E
TO Q652-B
TO Q641
TO Q702-B
TO RA08
TO Q843-B
TO J313-1
TO QU01-16
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TO JU03-8(T.P)
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TO QU01-43
TO QU21-5 RU09
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TO QU01-1/6
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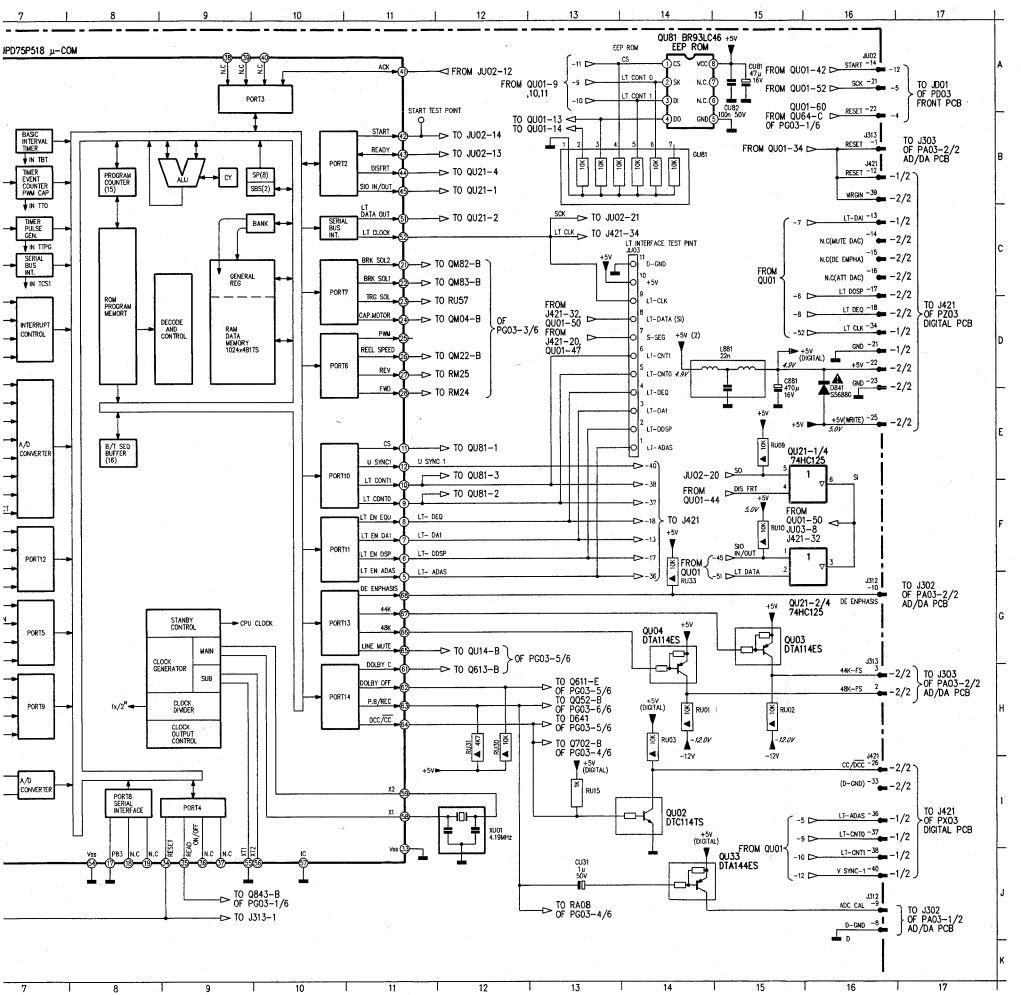

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C032	H3	JU01-3	E2
C033	G4	JU01-4	F2
C881	D15	JU01-5	F2
CU01	B6	JU01-6	F2
CU02	B5	JU02-12	J2
CU31	J13	JU02-13	J2
CU81	A15	JU02-14	A16
CU82	A15	JU02-19	J2
D841	D16	JU02-20	J2
GU01	D3	JU02-21	A16
GU81	B14	JU03	C14
JU12-10	G16	JU03-1	E14
JU12-8	J16	JU03-2	E14
JU12-9	J16	JU03-3	E14
JU13-1	B16	JU03-4	E14
JU13-2	H16	JU04-1	D2
JU13-3	H16	JU04-2	C2
J421-1	A2	JU04-3	D2
J421-10	B2	JU04-4	D2
J421-11	A2	JU04-5	C2
J421-12	B16	L881	D15
J421-13	C16	QQ31-1/2	H4
J421-14	C16	QU01	A7
J421-15	C16	QU02	I14
J421-16	C16	QU03	G15
J421-17	C16	QU04	G14
J421-18	D16	QU21-1/4	E16
J421-19	B2	QU21-2/4	F16
J421-20	B2	QU31-2/2	G3
J421-21	D16	QU33	J14
J421-22	D16	QU81	A14
J421-23	D16	RD32	G3
J421-25	E16	RD33	H3
J421-26	I16	RD35	H4
J421-32	I2	RD39	G4
J421-33	I16	RU01	H14
J421-34	D16	RU02	H15
J421-35	J2	RU03	H14
J421-36	I16	RU04	D4
J421-37	I16	RU06	E4
J421-38	J16	RU07	E4
J421-39	B16	RU08	E4
J421-4	A2	RU09	E15
J421-40	J16	RU10	F15
J421-41	I2	RU15	J13
J421-8	A2	RU30	H12
J421-9	B2	RU31	H12
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JM04-4	H2	RU70	J6
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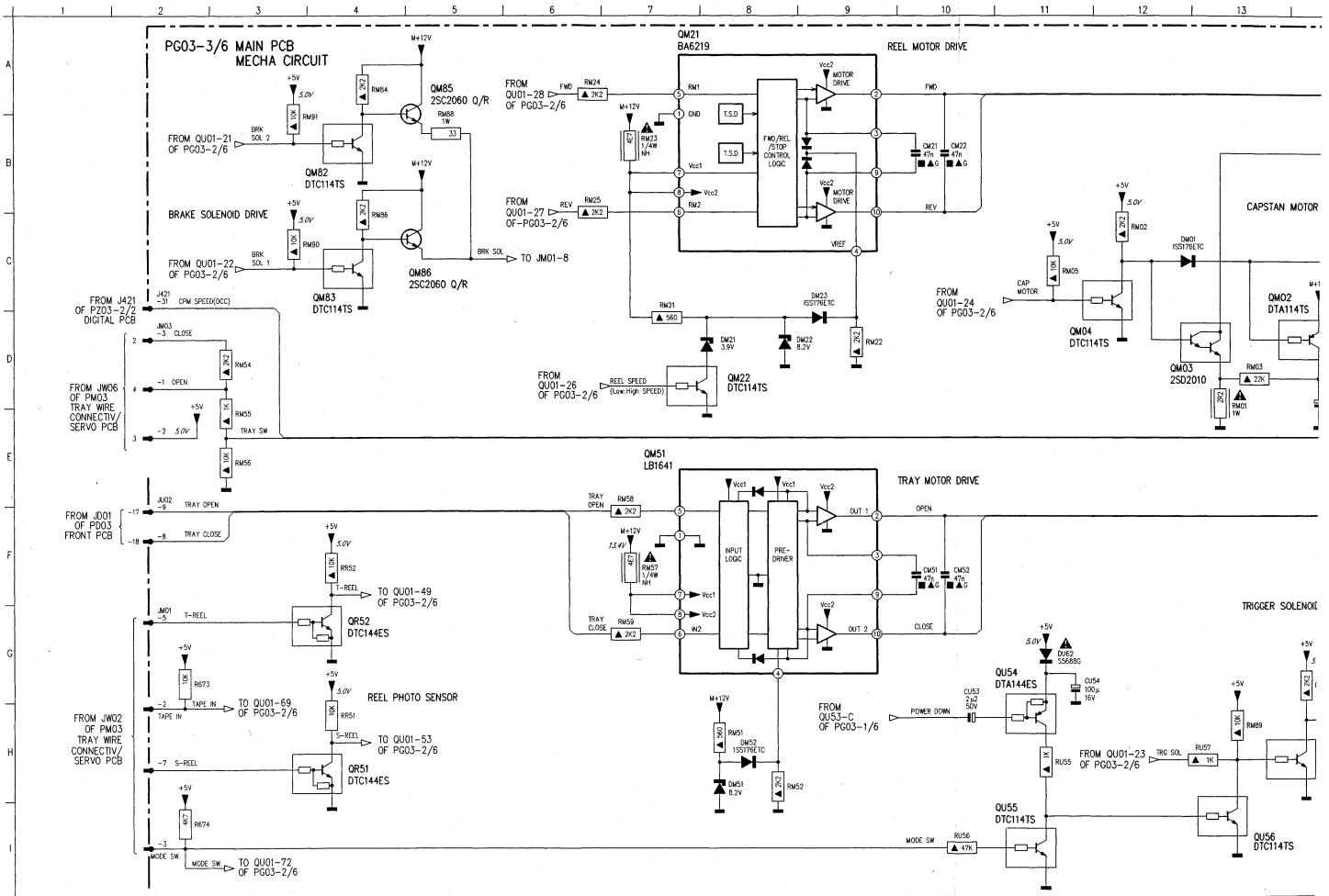
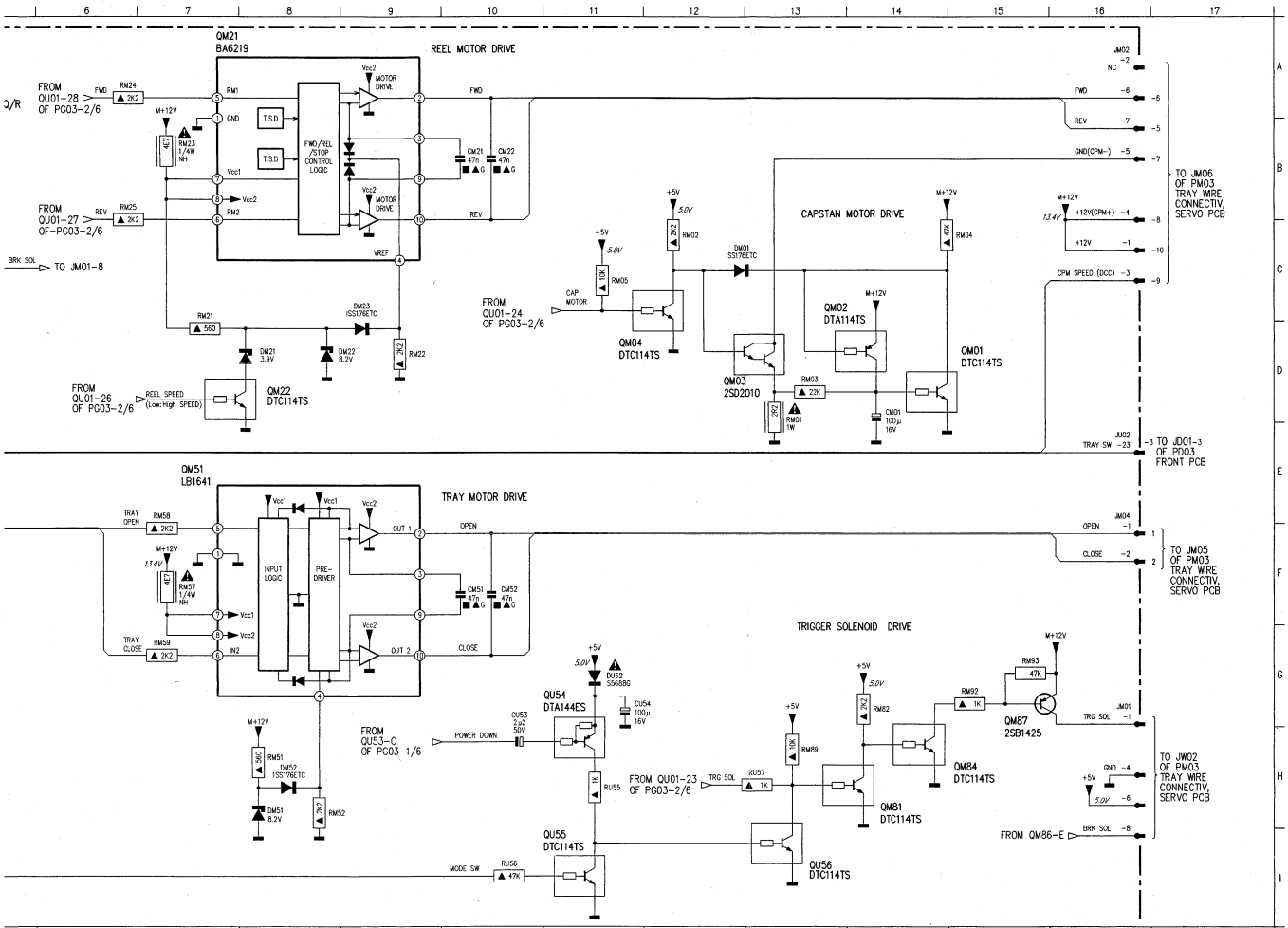
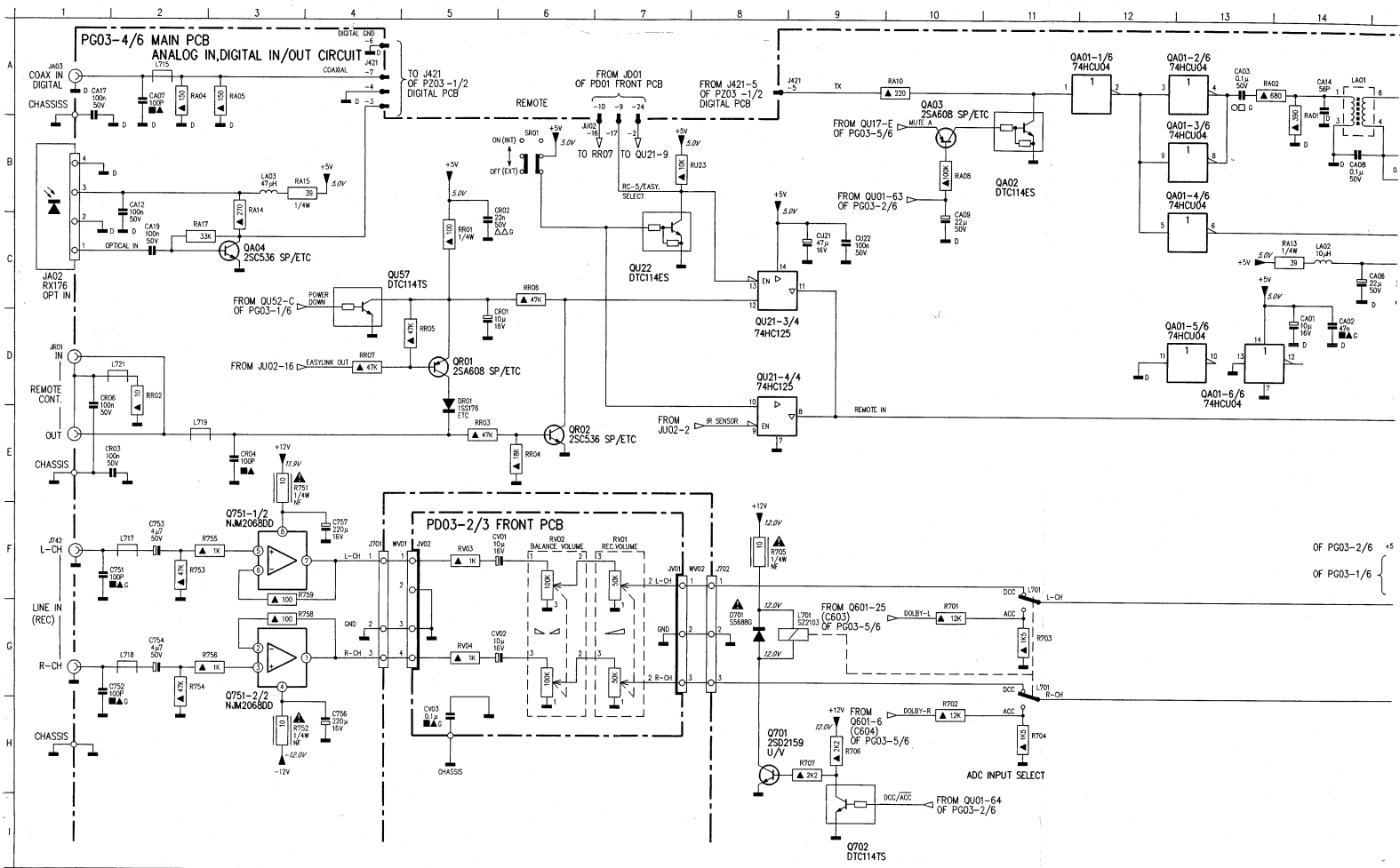
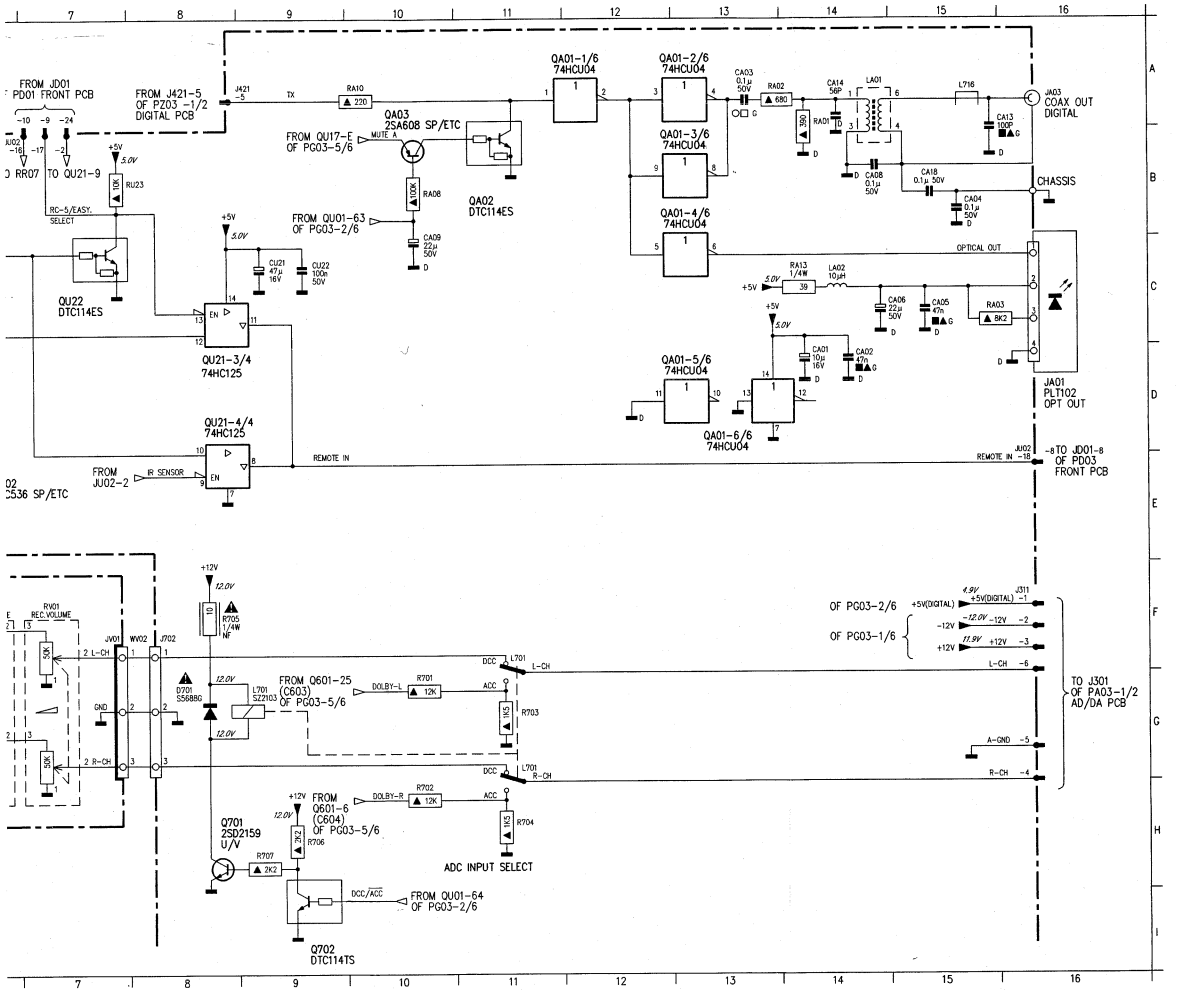

PG03-3/6 MAIN PCB
MECHA CIRCUIT
BRAKE SOLENOID DRIVE
QM85 2SC2060 Q/R
QM86 2SC2060 Q/R
QM82 DTC114TS
QM83 DTC114TS
QM21 BA6219
REEL MOTOR DRIVE
FWD/REL /STOP CONTROL LOGIC
MOTOR DRIVE
T.S.D
VREF
QM22 DTC114TS
CAPSTAN MOTOR
QM01 ISS376E1C
QM02 DTA114TS
QM03 2SD2010
QM04 DTC114TS
QM51 LB1641
TRAY MOTOR DRIVE
INPUT LOGIC
PRE-DRIVER
REEL PHOTO SENSOR
QR52 DTC144ES
QR51 DTC144ES
QU54 DTA144ES
QU55 DTC114TS
QU56 DTC114TS
TRIGGER SOLENOI
FROM QU01-21 OF PG03-2/6
FROM QU01-22 OF PG03-2/6
FROM QU01-28 OF PG03-2/6
FROM QU01-27 OF PG03-2/6
FROM QU01-26 OF PG03-2/6
FROM QU01-24 OF PG03-2/6
FROM QU01-23 OF PG03-2/6
FROM QU53-C OF PG03-1/6
FROM J421 OF PZ03-2/2 DIGITAL PCB
FROM JW06 OF PM03 TRAY WIRE CONNECTIV/ SERVO PCB
FROM JW02 OF PM03 TRAY WIRE CONNECTIV/ SERVO PCB
FROM JD01 OF PD03 FRONT PCB
TO JM01-8
TO QU01-49 OF PG03-2/6
TO QU01-69 OF PG03-2/6
TO QU01-53 OF PG03-2/6
TO QU01-72 OF PG03-2/6

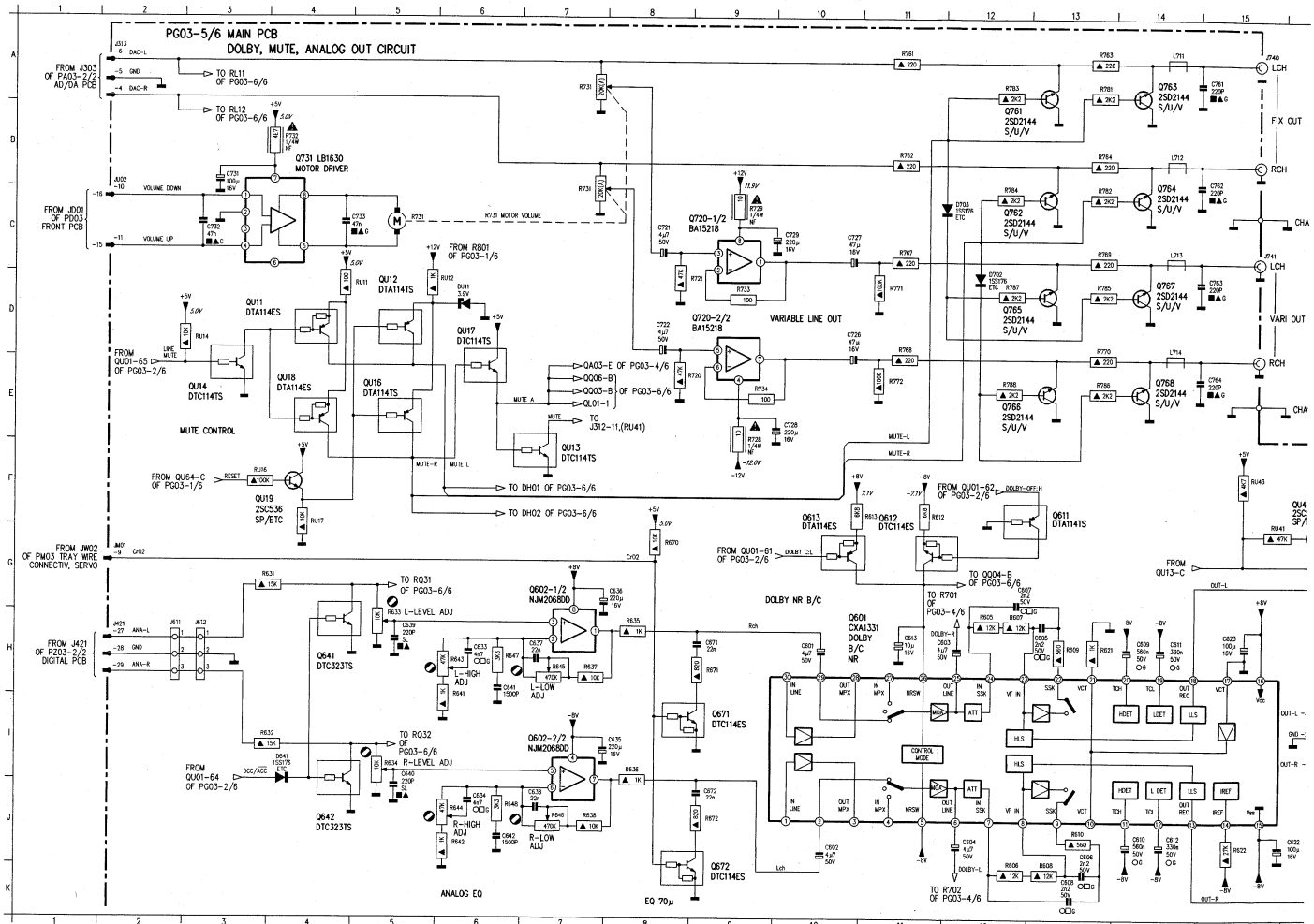


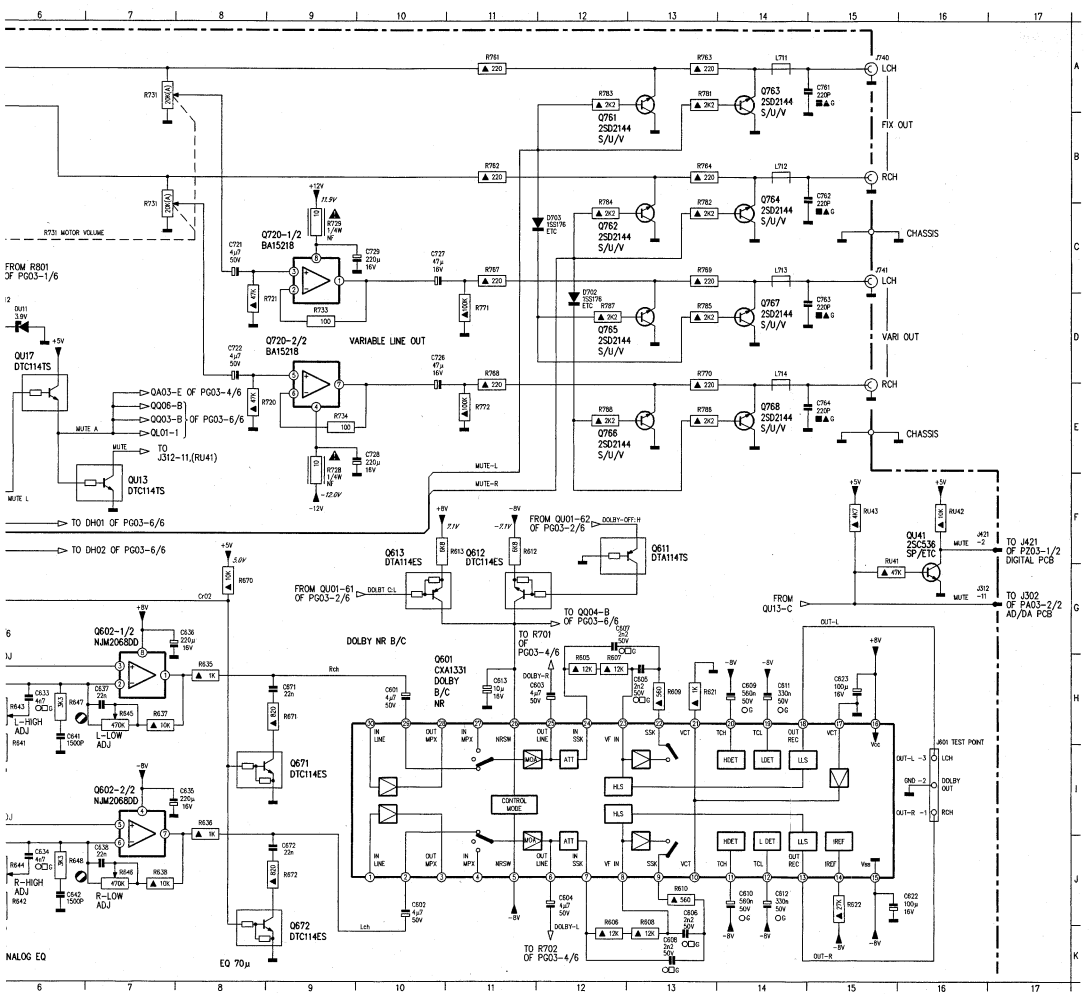
CM01	D14
CM21	B10
CM22	B10
CM51	F10
CM52	F10
CU53	H10
CU54	G11
DM01	C12
DM21	D8
DM22	D8
DM23	D9
DM51	H8
DM52	H8
DU82	G11
J421-2	E2
J421-31	C2
JM01-1	G16
JM01-2	H2
JM01-3	I2
JM01-4	H16
JM01-5	G2
JM01-6	H16
JM01-7	H2
JM01-8	I16
JM02-1	C16
JM02-2	A16
JM02-3	C16
JM02-4	B16
JM02-5	B16
JM02-6	A16
JM02-7	B16
JM03-1	D2
JM03-3	D2
JM04-1	F16
JM04-2	F16
JU02-23	E16
JU02-8	F2
JU02-9	F2
QM01	D14
QM02	D14
QM03	D13
QM04	C12
QM21	A8
QM22	D8
QM51	E8
QM81	H14
QM82	B4
QM83	C4
QM84	H14
QM85	A5
QM86	C5
QM87	G15
QR51	H4
QR52	G4
QU54	H11
QU55	I11
QU56	I13
R673	G2
R674	I2
RM01	D13
RM02	C12
RM03	D13
RM04	C14
RM05	C11
RM21	D7
RM22	D9
RM23	B7
RM24	A6
RM25	B6
RM51	H8
RM52	H8
RM54	D3
RM55	D3
RM56	D3
RM57	F7
RM58	F7
RM59	G7
RM62	G14
RM84	A4
RM86	B4
RM88	B5
RM89	H13
RM90	C3
RM91	B3
RM92	G15
RM93	G15
RR51	H4
RR52	F4
RU55	H11
RU56	I10
RU57	H13


PG03-4/6 MAIN PCB
ANALOG IN,DIGITAL IN/OUT CIRCUIT
PD03-2/3 FRONT PCB
JA03 COAX IN DIGITAL
CHASSIS
OPTICAL IN
JA02 RX176 OPT IN
JR01 IN
REMOTE CONT.
OUT
LINE IN (REC)
L-CH
R-CH
TO J421 OF PZ03-1/2 DIGITAL PCB
FROM J421-5 OF PZ03-1/2 DIGITAL PCB
REMOTE
FROM JD01 OF PD01 FRONT PCB
TO RR07
TO QU21-9
RC-5/EASY. SELECT
ON (INT)
OFF (EXT)
QA04 2SC536 SP/ETC
QA03 2SA608 SP/ETC
QA02 DTC114ES
QU22 DTC114ES
QU57 DTC114TS
FROM QU52-C OF PG03-1/6
POWER DOWN
FROM JU02-16
EASYLINK OUT
QR01 2SA608 SP/ETC
QR02 2SC536 SP/ETC
FROM JU02-2
IR SENSOR
REMOTE IN
QU21-1/6 74HCU04
QU21-2/6 74HCU04
QU21-3/4 74HC125
QU21-4/4 74HC125
QA01-1/6 74HCU04
QA01-2/6 74HCU04
QA01-3/6 74HCU04
QA01-4/6 74HCU04
QA01-5/6 74HCU04
QA01-6/6 74HCU04
FROM QU01-63 OF PG03-2/6
FROM QU01-64 OF PG03-2/6
MUTE A
Q751-1/2 NJM2068DD
Q751-2/2 NJM2068DD
RV01 REC.VOLUME
RV02 BALANCE VOLUME
RV03
RV04
CV01
CV02
CV03
D701 S5688G
L701 SZ2103
FROM Q601-25 (C603) OF PG03-5/6
DOLBY-L
DOLBY-R
DCC
ACC
Q701 2SD2159 U/V
FROM Q601-6 (C604) OF PG03-5/6
ADC INPUT SELECT
DCC/ACC
Q702 DTC114TS
+5V
+12V
-12V
GND
OF PG03-2/6
OF PG03-1/6

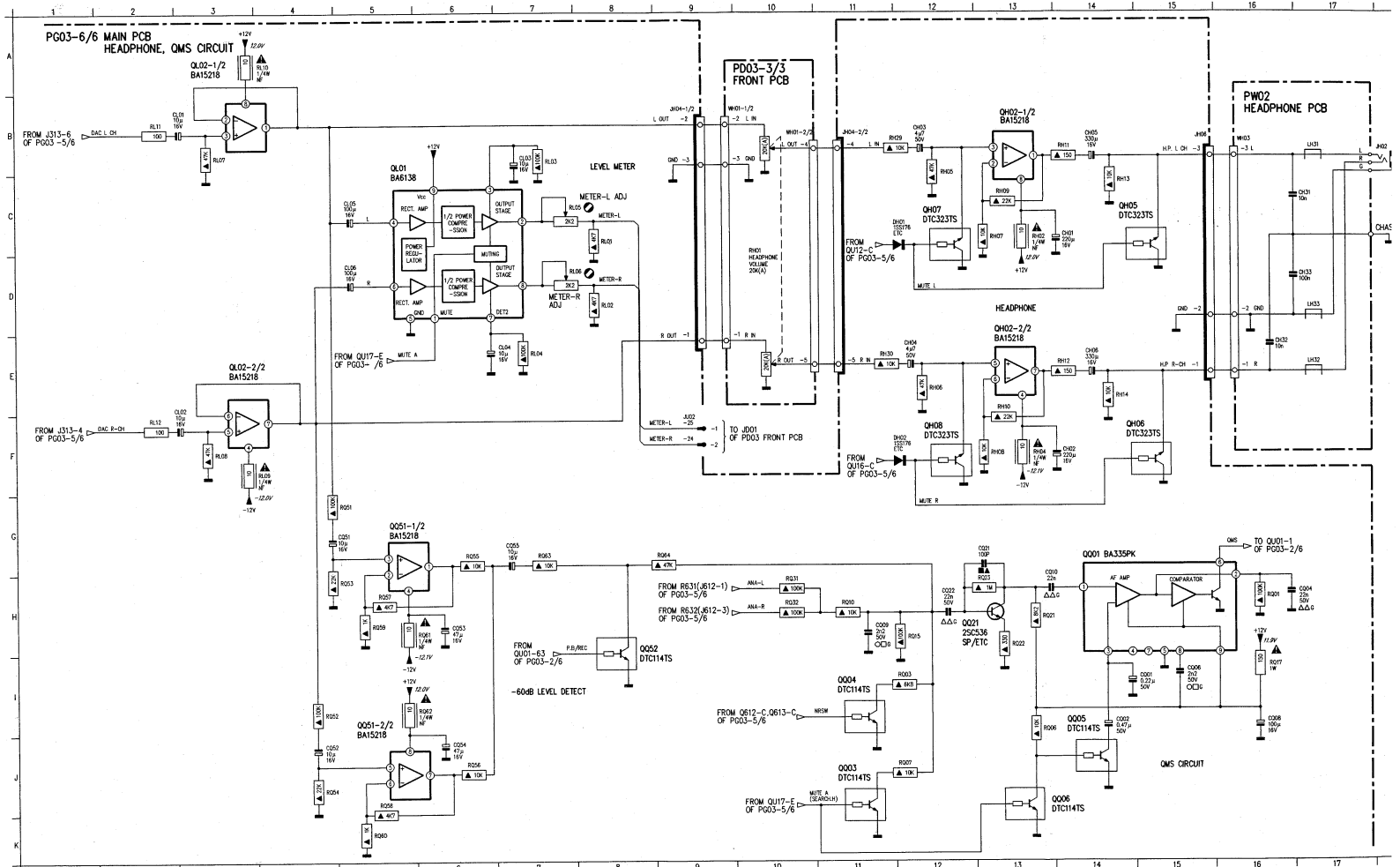


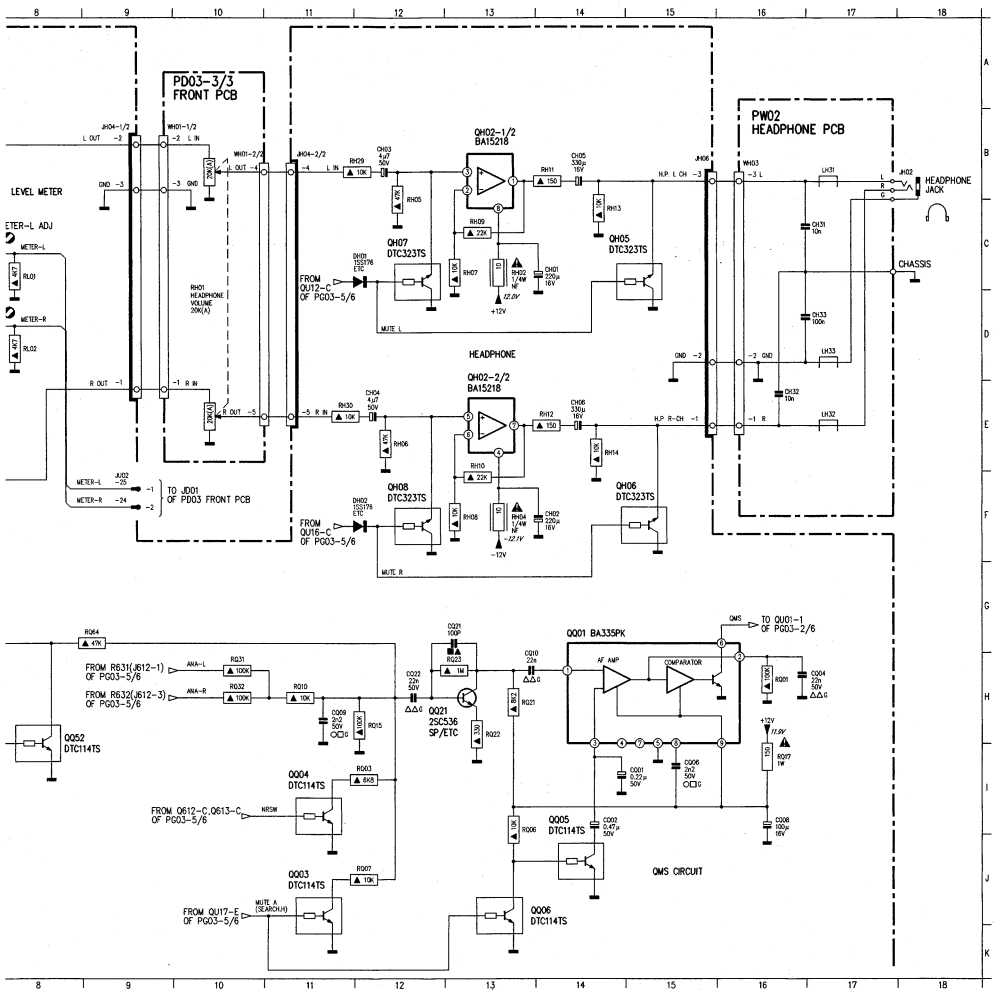
C751	F1	QU21-3/4 C8
C752	G1	QU21-4/4 E8
C753	F2	QU22 C7
C754	G2	QU57 C4
C756	H4	R701 G10
C757	F4	R702 H10
CA01	D14	R703 G11
CA02	D14	R704 H11
CA03	A13	R705 F8
CA04	B15	R706 H9
CA05	C15	R707 H8
CA06	C14	R751 E3
CA07	A2	R752 H3
CA08	B14	R753 F2
CA09	C10	R754 G2
CA12	B2	R755 F3
CA13	B15	R756 G3
CA14	A14	R758 G3
CA17	A1	R759 F3
CA18	B15	RA01 A14
CA19	C2	RA02 A13
CR01	D5	RA03 C15
CR02	C5	RA04 A2
CR03	E1	RA05 A3
CR04	E3	RA08 B10
CR06	E1	RA10 A10
CU21	C9	RA13 C14
CU22	C9	RA14 B3
CV01	F8	RA15 B3
CV02	G6	RA17 C2
CV03	6H	RR01 C5
D701	G8	RR02 D2
DR01	E5	RR03 E5
JJ11-1	F16	RR04 E6
JJ11-2	F16	RR05 D5
JJ11-3	F16	RR06 C6
JJ11-4	G16	RR07 D4
JJ11-5	G16	RU23 B7
JJ11-6	F16	RV01 F7
J421-3	A4	RV02 F6
J421-4	A4	RV03 E5
J421-5	A8	RV04 G5
J421-6	A4	SR01 B8
J421-7	A4	WV01 F4
J701	F4	WV02 F8
J702	F8	
J742	F1	
JA01-1	C16	
JA01-2	C16	
JA01-3	C16	
JA01-4	D16	
JA02-1	C1	
JA02-2	C1	
JA02-3	B1	
JA02-4	B1	
JA03	A1	
JA03	A16	
JR01	D1	
JU02-16	B7	
JU02-17	B7	
JU02-18	E16	
JU02-2	B7	
JV01	F7	
JV02	F5	
L701	G11	
L701	G9	
L715	A2	
L716	A15	
L717	F2	
L718	G2	
L719	E2	
L721	D2	
LA01	A14	
LA02	C14	
LA03	B3	
Q701	H8	
Q702	I9	
Q751-1/2	F3	
Q751-2/2	G3	
QA01-1/6	A12	
QA01-2/6	A13	
QA01-3/6	B13	
QA01-4/6	C13	
QA01-5/6	D13	
QA01-6/6	D13	
QA02	B11	
QA03	B10	
QA04	C3	
QR01	D5	
QR02	E6	


PG03-5/6 MAIN PCB
DOLBY, MUTE, ANALOG OUT CIRCUIT
FROM J303 OF PA03-2/2 AD/DA PCB
TO RL11 OF PG03-6/6
TO RL12 OF PG03-6/6
Q731 LB1630 MOTOR DRIVER
FROM JD01 OF PD03 FRONT PCB
VOLUME DOWN
VOLUME UP
R731 MOTOR VOLUME
FROM RB01 OF PG03-1/6
QU11 DTA114ES
QU12 DTA114TS
QU17 DTC114TS
QU14 DTC114TS
QU18 DTA114ES
QU16 DTA114TS
QU13 DTC114TS
FROM QU01-65 OF PG03-2/6
MUTE CONTROL
FROM QU64-C OF PG03-1/6
QU19 2SC536 SP/ETC
TO DH01 OF PG03-6/6
TO DH02 OF PG03-6/6
FROM JW02 OF PM03 TRAY WIRE CONNECTIV, SERVO
FROM J421 OF PZ03-2/2 DIGITAL PCB
TO RQ31 OF PG03-6/6
L-LEVEL ADJ
Q641 DTC323TS
L-HIGH ADJ
L-LOW ADJ
Q602-1/2 NJM2068DD
TO RQ32 OF PG03-6/6
R-LEVEL ADJ
FROM QU01-64 OF PG03-2/6
Q642 DTC323TS
R-HIGH ADJ
R-LOW ADJ
Q602-2/2 NJM2068DD
ANALOG EQ
Q671 DTC114ES
Q672 DTC114ES
EQ 70μ
Q720-1/2 BA15218
Q720-2/2 BA15218
VARIABLE LINE OUT
QA03-E OF PG03-4/6
QQ06-B
QQ03-B OF PG03-6/6
QL01-1
TO J312-11,(RU41)
MUTE A
MUTE-L
MUTE-R
FROM QU01-62 OF PG03-2/6
DOLBY-OFF:H
FROM QU01-61 OF PG03-2/6
DOLBY C.L
Q613 DTA114ES
Q612 DTC114ES
Q611 DTA114TS
TO QQ04-B OF PG03-6/6
TO R701 OF PG03-4/6
DOLBY NR B/C
Q601 CXA1331 DOLBY B/C NR
TO R702 OF PG03-4/6
FROM QU13-C
Q761 2SD2144 S/U/V
Q763 2SD2144 S/U/V
Q762 2SD2144 S/U/V
Q764 2SD2144 S/U/V
Q765 2SD2144 S/U/V
Q767 2SD2144 S/U/V
Q766 2SD2144 S/U/V
Q768 2SD2144 S/U/V
FIX OUT
VARI OUT
LCH
RCH
CHA



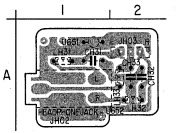
C601	H10	R605	H12
C602	J10	R606	K12
C603	H12	R607	H12
C604	J12	R608	K13
C605	H13	R609	H13
C606	K13	R610	J13
C607	G12	R611	F11
C608	K13	R613	F10
C609	H14	R621	H13
C610	J14	R622	J15
C611	H14	R631	G3
C612	J14	R632	I3
C613	H11	R633	H5
C622	J15	R634	I5
C623	H15	R635	H8
C633	H6	R636	I8
C634	J6	R637	H7
C635	I7	R638	J7
C636	G7	R641	H6
C637	H7	R642	J6
C638	J7	R643	H6
C639	H5	R644	J6
C640	J5	R645	H7
C641	H6	R646	J7
C642	J6	R647	H6
C671	H9	R648	J6
C672	J9	R670	G8
C721	C8	R671	H9
C722	D8	R672	J9
C726	D10	R720	E8
C727	C10	R721	C8
C728	E9	R728	E9
C729	C9	R729	C9
C731	B3	R731	C5
C732	C3	R732	B4
C733	C4	R733	D9
C761	A15	R734	E9
C762	B15	R761	A11
C763	D15	R762	B11
C764	E15	R763	A13
D641	I4	R764	B13
D702	D12	R767	C11
D703	C12	R768	D11
DU11	D6	R769	C13
J312-11	G17	R770	D13
J313-4	A2	R771	D11
J313-5	A2	R772	E11
J313-6	A2	R781	A13
J421-2	F17	R782	C13
J421-27	H2	R783	A12
J421-28	H2	R784	C12
J421-29	H2	R785	D13
J601	I16	R786	E13
J611	H2	R787	D12
J612	H3	R788	E12
J740	A15	RU11	D4
J741	C15	RU12	D5
JM01-9	G2	RU14	D3
JU02-10	C2	RU16	F3
JU02-11	C2	RU17	F4
L711	A14	RU41	G15
L712	B14	RU42	F16
L713	C14	RU43	G15
L714	D14		
Q601	H10		
Q602-1/2	H7		
Q602-2/2	I7		
Q611	F12		
Q612	G11		
Q613	G10		
Q641	H4		
Q642	J4		
Q671	I8		
Q672	J8		
Q720-1/2	C9		
Q720-2/2	D9		
Q731	B4		
Q761	A13		
Q762	C13		
Q763	A14		
Q764	C14		
Q765	D13		
Q766	E13		
Q767	D14		
Q768	E14		
QU11	D4		
QU12	D5		
QU13	F7		
QU14	E3		
QU16	E5		
QU17	E6		
QU18	E4		
QU19	F4		
QU41	G16		


PG03-6/6 MAIN PCB
HEADPHONE, QMS CIRCUIT
PD03-3/3
FRONT PCB
PW02
HEADPHONE PCB
QL02-1/2
BA15218
QL02-2/2
BA15218
QL01
BA6138
LEVEL METER
METER-L ADJ
METER-R ADJ
HEADPHONE VOLUME 20K(A)
QH02-1/2
BA15218
QH02-2/2
BA15218
QH07
DTC323TS
QH05
DTC323TS
QH08
DTC323TS
QH06
DTC323TS
HEADPHONE
MUTE L
MUTE R
QQ51-1/2
BA15218
QQ51-2/2
BA15218
QQ52
DTC114TS
-60dB LEVEL DETECT
QQ04
DTC114TS
QQ03
DTC114TS
QQ01 BA335PK
QQ21
2SC536
SP/ETC
QQ05
DTC114TS
QQ06
DTC114TS
QMS CIRCUIT
FROM J313-6 OF PG03 -5/6
FROM J313-4 OF PG03-5/6
FROM QU17-E OF PG03- /6
FROM QU12-C OF PG03-5/6
FROM QU16-C OF PG03-5/6
TO JD01 OF PD03 FRONT PCB
TO QU01-1 OF PG03-2/6
FROM QU01-63 OF PG03-2/6
FROM R631(J612-1) OF PG03-5/6
FROM R632(J612-3) OF PG03-5/6
FROM Q612-C,Q613-C OF PG03-5/6
FROM QU17-E OF PG03-5/6
MUTE A (SEARCH)
NRSW
ANA-L
ANA-R
P.B/REC
H.P. L CH
H.P. R-CH
L OUT
R OUT
L IN
R IN
GND
MUTE
+12V
-12V
12.0V
11.9V

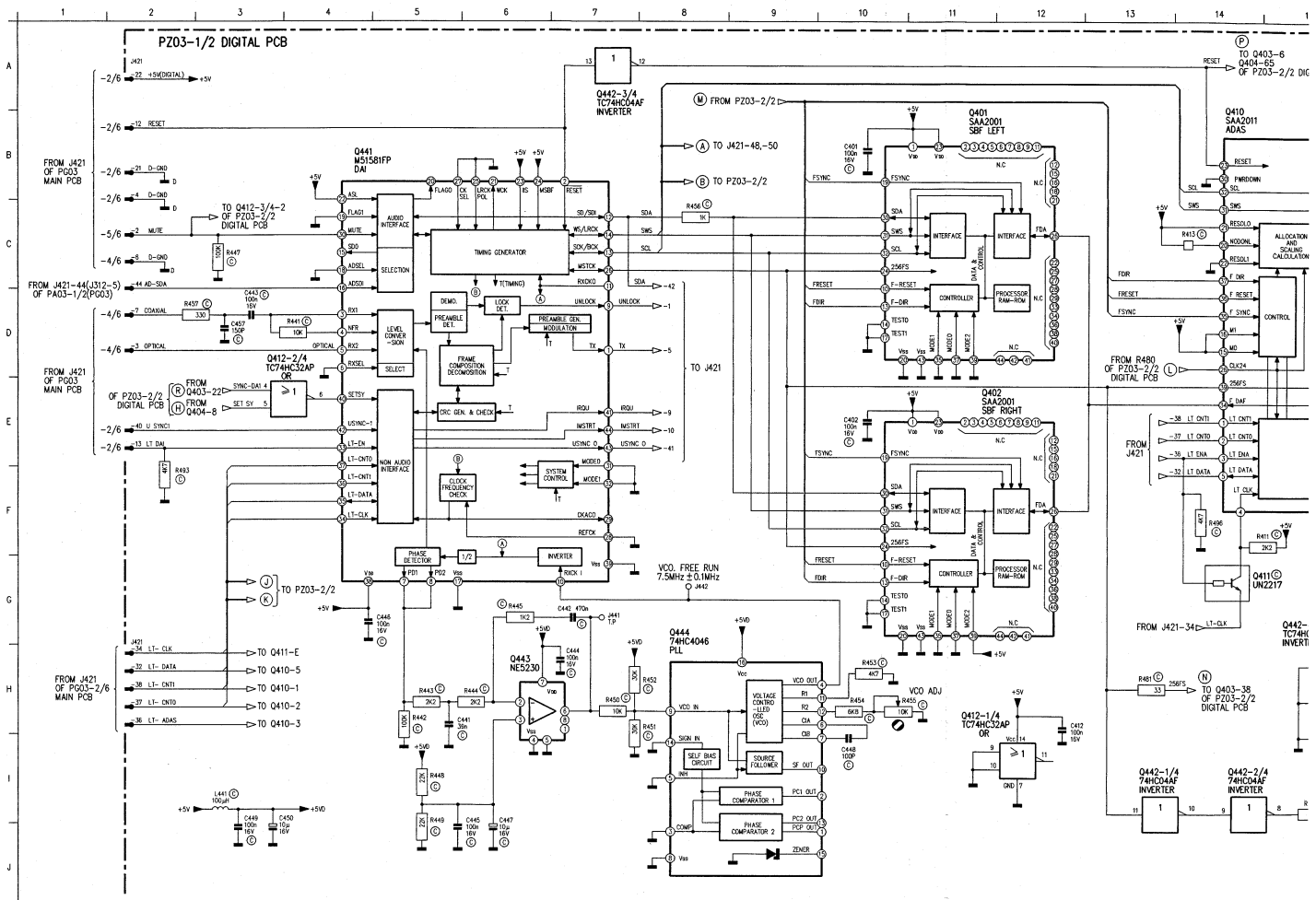


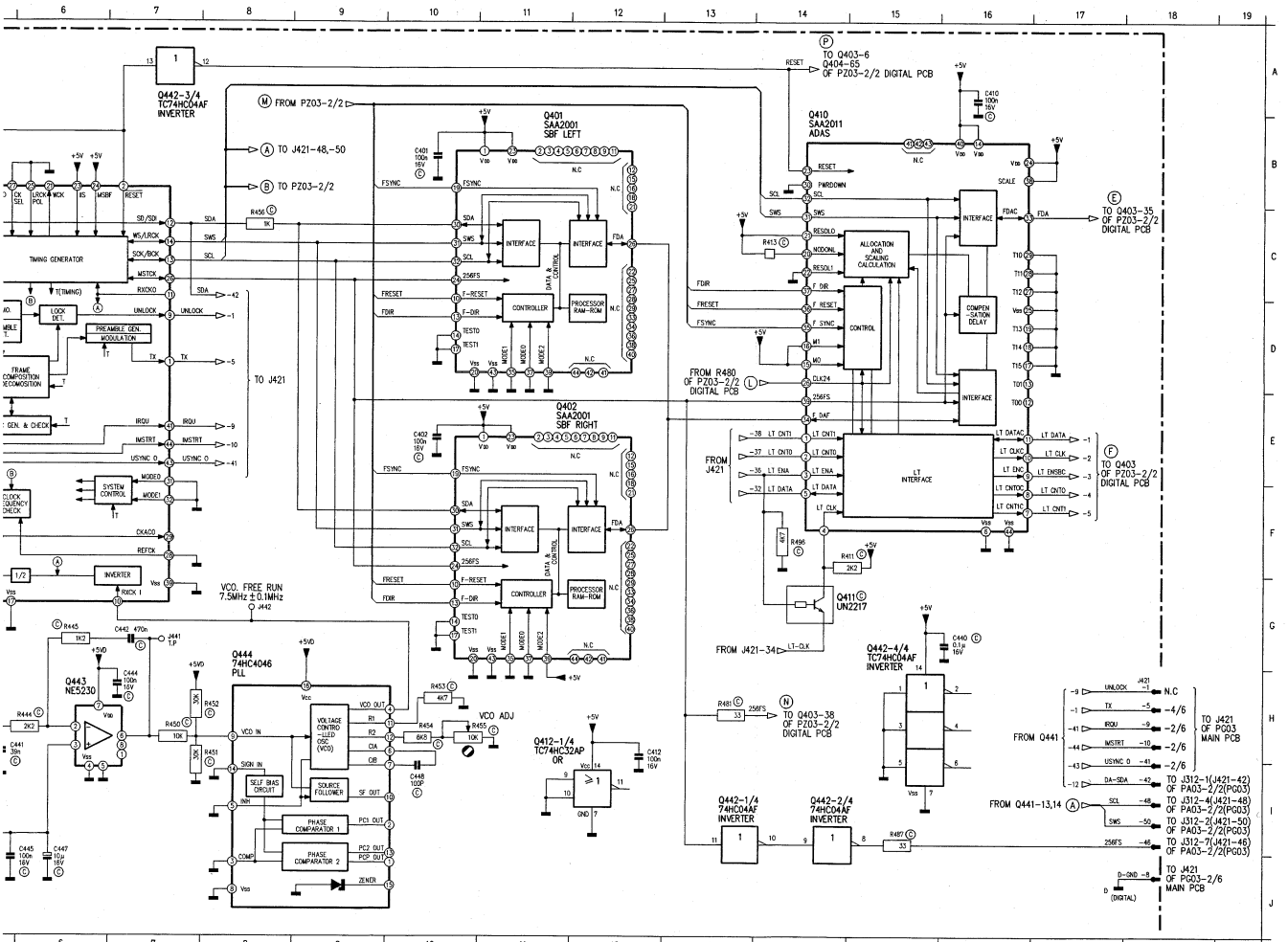
CH01	C14	LH32	E17	RL04	E7
CH02	F14	LH33	D17	RL05	C7
CH03	B12	QH02-1/2	B13	RL06	D7
CH04	E12	QH02-2/2	E13	RL07	B3
CH05	B14	QH05	C15	RL08	F3
CH06	E14	QH06	F15	RL09	F3
CH31	C16	QH07	C12	RL10	A3
CH32	E16	QH08	F12	RL11	B2
CH33	D16	QL01	C9	RL12	F2
CL01	B3	QL02-1/2	B3	RQ01	H16
CL02	F3	QL02-2/2	F3	RQ03	I12
CL03	B7	QQ01	H14	RQ06	I13
CL04	E8	QQ03	J11	RQ07	J12
CL05	C5	QQ04	I11	RQ10	H11
CL06	D5	QQ05	J14	RQ15	H12
CQ01	I14	QQ06	J13	RQ17	I16
CQ02	I14	QQ21	H13	RQ21	H13
CQ04	H16	QQ51-1/2	G5	RQ22	H13
CQ06	I15	QQ51-2/2	J5	RQ23	H13
CQ08	I16	QQ52	H6	RQ31	H10
CQ09	H11	RH01	B10	RQ32	H10
CQ10	H13	RH02	C13	RQ51	G4
CQ21	G13	RH04	F13	RQ52	I4
CQ22	H12	RH05	B12	RQ53	H4
CQ51	G4	RH06	E12	RQ54	J4
CQ52	J4	RH07	C13	RQ55	G6
CQ53	H6	RH08	F13	RQ56	J6
CQ54	J6	RH09	C13	RQ57	H5
CQ55	G7	RH10	F13	RQ58	K5
DH01	C12	RH11	B14	RQ59	H5
DH02	F12	RH12	E14	RQ60	K5
JH02	B18	RH13	C14	RQ61	H5
JH04	B9	RH14	E14	RQ62	I5
JH06	B15	RH29	B12	RQ63	G7
JH08	D15	RH30	E11	RQ64	G9
JU02-24	F9	RL01	C8	WH01	B10
JU02-25	F9	RL02	D8	WH03	B16
LH31	B17	RL03	B7	WH03	D16

HEADPHONE PCB (PW02)

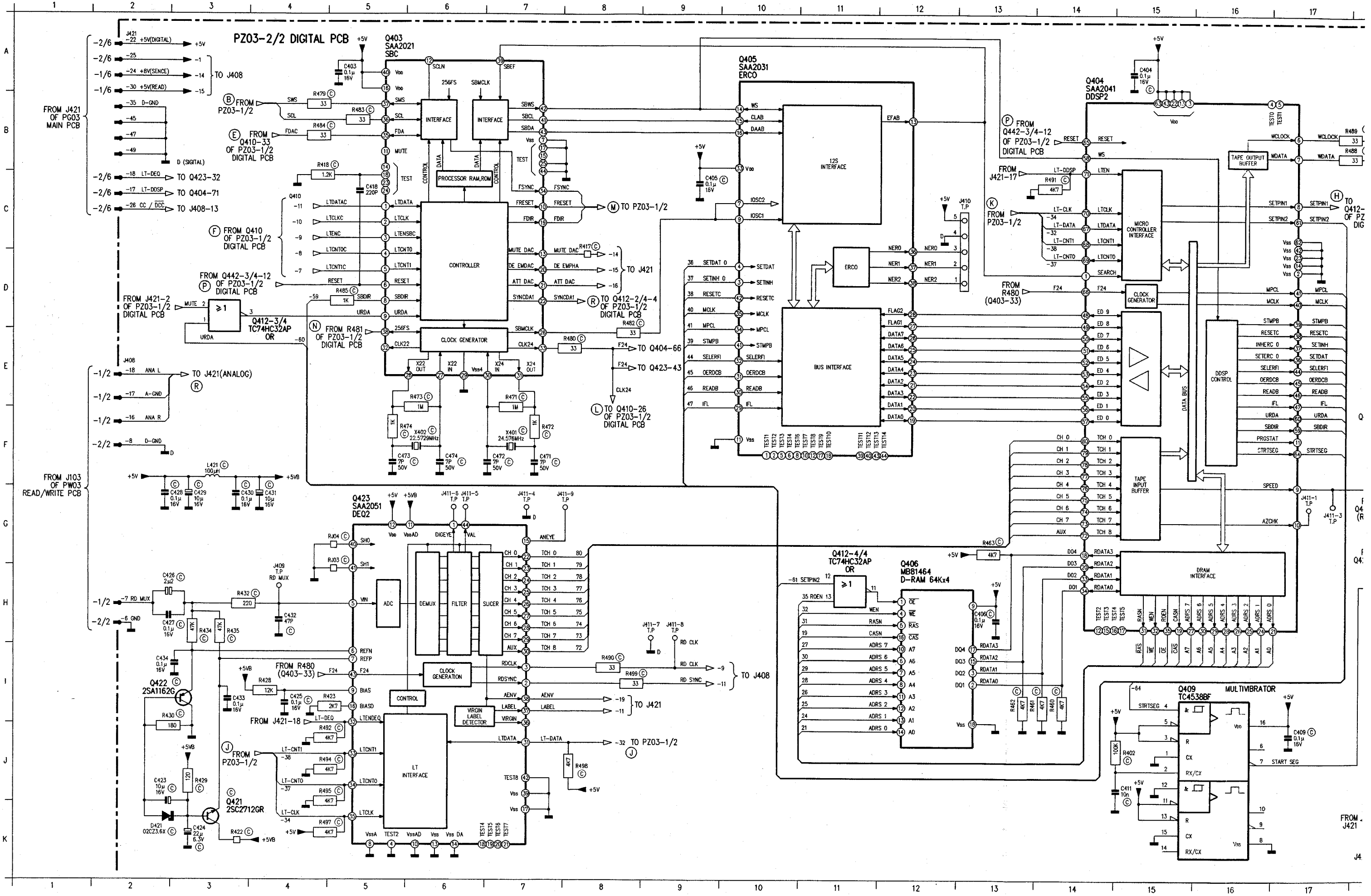


CH31	A-1
CH32	A-2
CH33	A-2
JH02	A-1
JH03	A-2
LH31	A-1
LH32	A-2
LH33	A-2
U651	A-1
U652	A-1

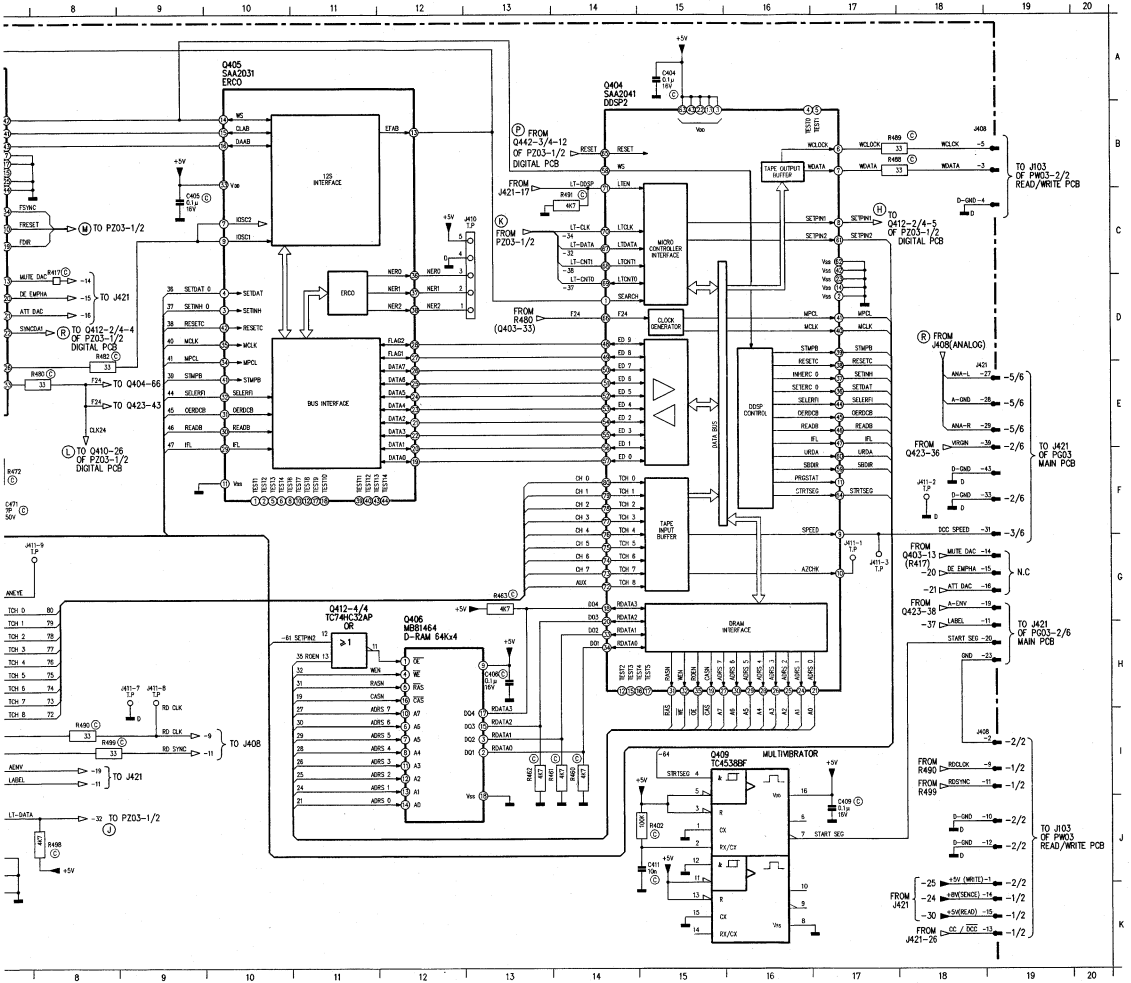

PZ03-1/2 DIGITAL PCB
Q442-3/4
TC74HC04AF
INVERTER
Q441
M51581FP
DAI
Q401
SAA2001
SBF LEFT
Q402
SAA2001
SBF RIGHT
Q410
SAA2011
ADAS
Q412-2/4
TC74HC32AP
OR
Q412-1/4
TC74HC32AP
OR
Q443
NE5230
Q444
74HC4046
PLL
Q411
UN2217
Q442-1/4
74HC04AF
INVERTER
Q442-2/4
74HC04AF
INVERTER
FROM J421
OF PG03
MAIN PCB
FROM J421-44(J312-5)
OF PA03-1/2(PG03)
FROM J421
OF PG03-2/6
MAIN PCB
TO Q412-3/4-2
OF PZ03-2/2
DIGITAL PCB
FROM
OF PZ03-2/2
DIGITAL PCB
TO J421
TO PZ03-2/2
FROM PZ03-2/2
TO J421-48,-50
TO PZ03-2/2
VCO FREE RUN
7.5MHz ±0.1MHz
VCO ADJ
FROM R480
OF PZ03-2/2
DIGITAL PCB
TO Q403-6
Q404-65
OF PZ03-2/2 DIG
TO Q403-38
OF PZ03-2/2
DIGITAL PCB
FROM J421-34
AUDIO INTERFACE
SELECTION
TIMING GENERATOR
LEVEL CONVER -SION
SELECT
DEMO.
PREAMBLE DET.
LOCK DET.
PREAMBLE GEN. MODULATION
FRAME COMPOSITION DECOMPOSITION
CRC GEN. & CHECK
NON AUDIO INTERFACE
CLOCK FREQUENCY CHECK
SYSTEM CONTROL
PHASE DETECTOR
INVERTER
INTERFACE
CONTROLLER
PROCESSOR RAM-ROM
DATA & CONTROL
ALLOCATION AND SCALING CALCULATION
CONTROL
VOLTAGE CONTRO -LLED OSC. (VCO)
SOURCE FOLLOWER
SELF BIAS CIRCUIT
PHASE COMPARATOR 1
PHASE COMPARATOR 2
RESET
PWRDOWN
SCL
SWS
RESOLO
MODONL
RESOLI
F_DIR
F_RESET
F_SYNC
M1
M0
CLK24
256FS
DAF
LT CNT1
LT CNT0
LT ENA
LT DATA
LT CLK
FDR
FRESET
FSYNC
SDA
SWS
SCL
256FS
F-RESET
F-DIR
TEST0
TEST1
FDA
N.C
MODE0
MODE1
MODE2
Vss
Vdd
+5V
+5VD
TO Q411-E
TO Q410-5
TO Q410-1
TO Q410-2
TO Q410-3
LT- CLK
LT- DATA
LT- CNT1
LT- CNT0
LT- ADAS



C401	B10
C402	E10
C410	A16
C412	H12
C440	G16
C441	H5
C442	G7
C443	D3
C444	H7
C445	J5
C446	G4
C447	J6
C448	I10
C449	J3
C450	J3
C457	D3
J421-1	H18
J421-10	H18
J421-12	B2
J421-13	E2
J421-2	C2
J421-21	B2
J421-22	A2
J421-3	D2
J421-32	H2
J421-34	H2
J421-36	H2
J421-37	H2
J421-38	H2
J421-4	B2
J421-40	E2
J421-41	H18
J421-42	I18
J421-44	C2
J421-46	I18
J421-48	I18
J421-5	H18
J421-50	I18
J421-6	C2
J421-7	D2
J421-8	J18
J421-9	H18
L441	I3
Q401	B11
Q402	E11
Q410	B14
Q411	G14
Q412-1/4	I12
Q412-2/4	E4
Q441	B4
Q442-1/4	I13
Q442-2/4	I14
Q442-3/4	A7
Q442-4/4	H15
Q443	H6
Q444	H8
R411	F14
R413	C14
R441	D4
R442	H5
R443	H5
R444	H6
R445	G6
R447	C3
R448	I5
R449	J5
R450	H7
R451	H7
R452	H7
R453	H10
R454	H10
R455	H10
R456	C8
R457	D3
R481	H13
R487	I15
R493	F2
R496	F14

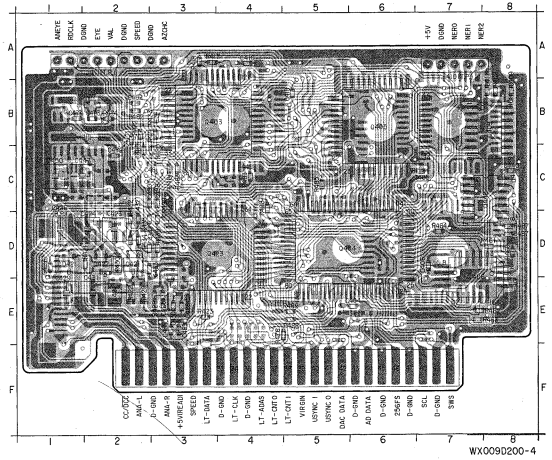


PZ03-2/2 DIGITAL PCB
Q403 SAA2021 SBC
Q405 SAA2031 ERCO
Q404 SAA2041 DDSP2
Q423 SAA2051 DEQ2
Q406 MBB1464 D-RAM 64Kx4
Q412-3/4 TC74HC32AP OR
Q412-4/4 TC74HC32AP OR
Q409 TC4538BF MULTIVIBRATOR
Q422 2SA1162G
Q421 2SC2712GR
FROM J421 OF PG03 MAIN PCB
FROM J103 OF PW03 READ/WRITE PCB
TO J408
TO J421
TO PZ03-1/2



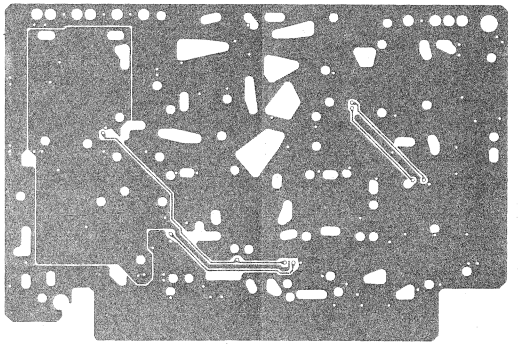
C403	A5	J421-26	C2
C404	A15	J421-27	E19
C405	C9	J421-28	E19
C406	H13	J421-29	E19
C409	J17	J421-30	A2
C411	J15	J421-31	F19
C418	C5	J421-33	F19
C423	J2	J421-35	B2
C424	K3	J421-39	E19
C425	I4	J421-43	F19
C426	H2	J421-45	B2
C427	H2	J421-47	B2
C428	G2	J421-49	B2
C429	G3	J421-8	F2
C430	G3	L421	F3
C431	G4	Q403	A5
C432	H4	Q404	B14
C433	I3	Q405	A10
C434	I3	Q406	H12
C471	F7	Q409	I18
C472	F7	Q412-3/4	D3
C473	F5	Q412-4/4	H11
C474	F6	Q421	K3
D421	K2	Q422	I3
J408-1	K19	Q423	G5
J408-10	J19	R402	J15
J408-13	K19	R417	D8
J408-14	K19	R418	C4
J408-15	K19	R422	K3
J408-17	E2	R423	I5
J408-18	E2	R426	I4
J408-2	I19	R429	J3
J408-3	B19	R432	H3
J408-4	C19	R434	H3
J408-5	B19	R435	H3
J408-6	H2	R460	I14
J408-7	H2	R461	I14
J408-9	I19	R462	I13
J409	H4	R463	G13
J409-11	I19	R471	E7
J409-12	J19	R472	F7
J410	C13	R473	E6
J411-1	G17	R474	F5
J411-2	F18	R476	I8
J411-3	G17	R479	B4
J411-4	G7	R480	E8
J411-5	G6	R482	E8
J411-6	G6	R483	B5
J411-7	H9	R484	B4
J411-8	H9	R485	D5
J411-9	G8	R488	B17
J421-11	H19	R489	B17
J421-14	G19	R490	I8
J421-15	G19	R491	C14
J421-16	F2	R492	J4
J421-18	G19	R494	J4
J421-17	C2	R495	J4
J421-18	C2	R497	K4
J421-19	G19	R498	J8
J421-20	H19	R499	I8
J421-22	A2	RJ03	H5
J421-23	H19	RJ04	G5
J421-24	A2	X401	F7
J421-25	A2	X402	F6

DIGITAL PCB A SIDE (PZ03)

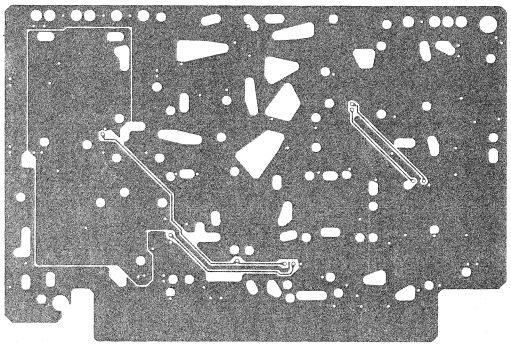


C403	C4	Q406	D7
C404	E8	Q408	B8
C405	C7	Q421	D2
C406	D7	Q422	D2
C409	B8	Q423	D3
C410	A4	Q442	C8
C411	B8	R402	B8
C418	B5	R417	A3
C423	D2	R418	A3
C424	D2	R421	D2
C425	E3	R422	E2
C426	D1	R423	E5
C427	D1	R428	E3
C428	E3	R429	E2
C429	E1	R430	D2
C430	E3	R432	D2
C431	E2	R434	D2
C432	D2	R435	D2
C433	D2	R438	D3
C434	D2	R460	D8
C440	C8	R461	D8
C447	C1	R462	E7
C450	C1	R463	E7
C471	B2	R464	D7
C472	C2	R471	B3
C473	B2	R472	B2
C474	B1	R473	B3
C480	C2	R474	B2
C481	C3	R476	E5
C482	B2	R480	C3
C487	D8	R481	C3
C488	E3	R482	B2
C489	E3	R483	C3
C490	C2	R485	C5
C499	C3	R487	D8
D421	D1	R488	E5
J410	A7	R489	E5
J411	A2	R490	D2
L421	E2	R498	C4
Q403	B3	R499	D3
Q404	D5	X401	B2
Q405	B6	X402	B2

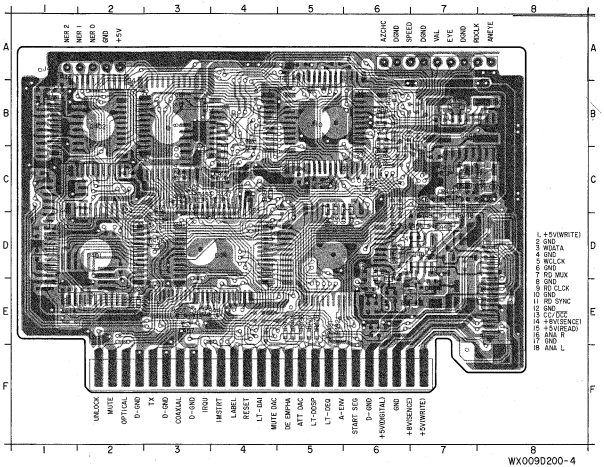
MIDDLE LAYER PATTERN



MIDDLE LAYER PATTERN

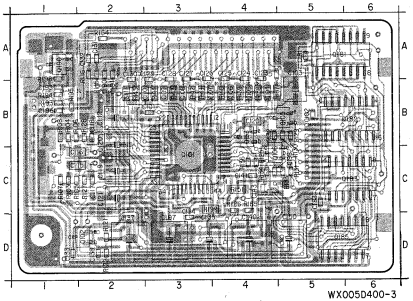


DIGITAL PCB B SIDE (PZ03)

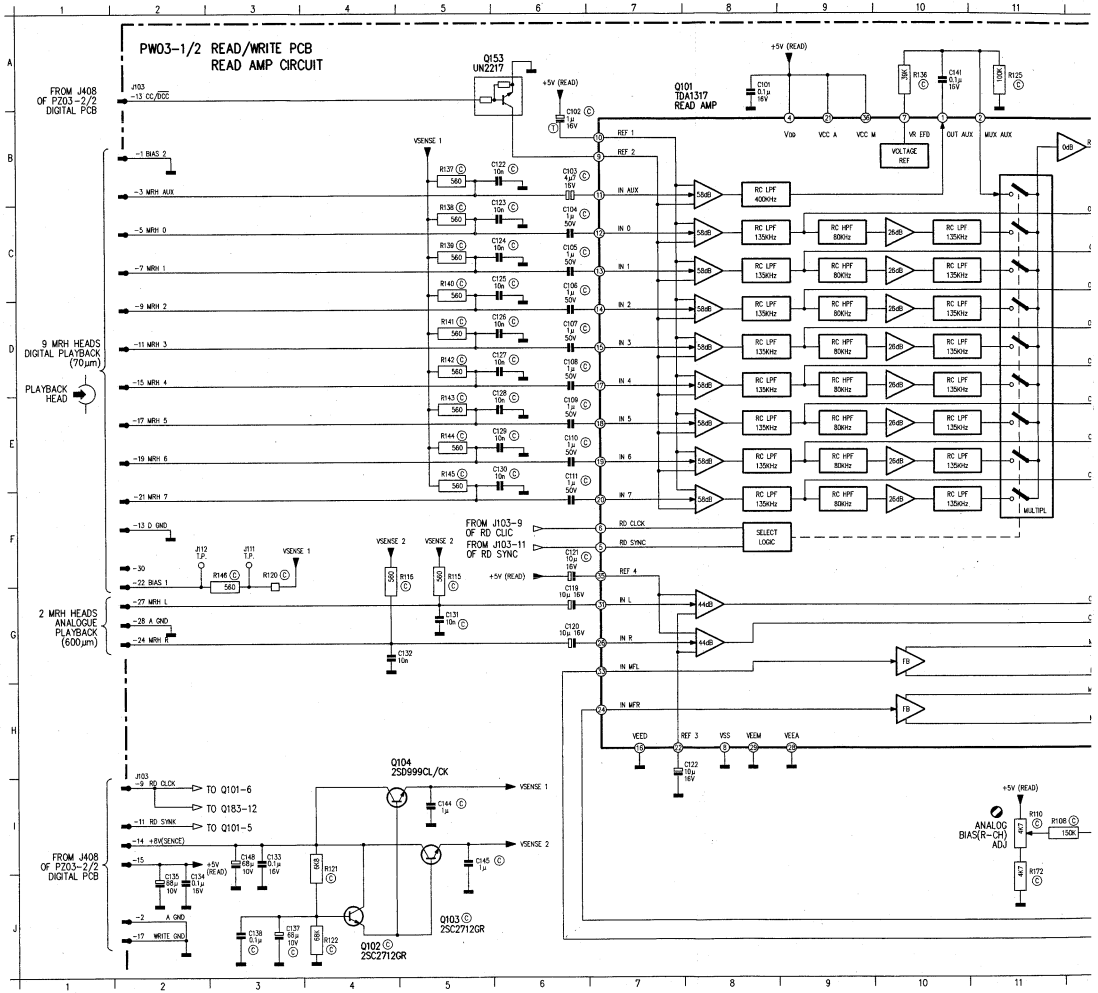


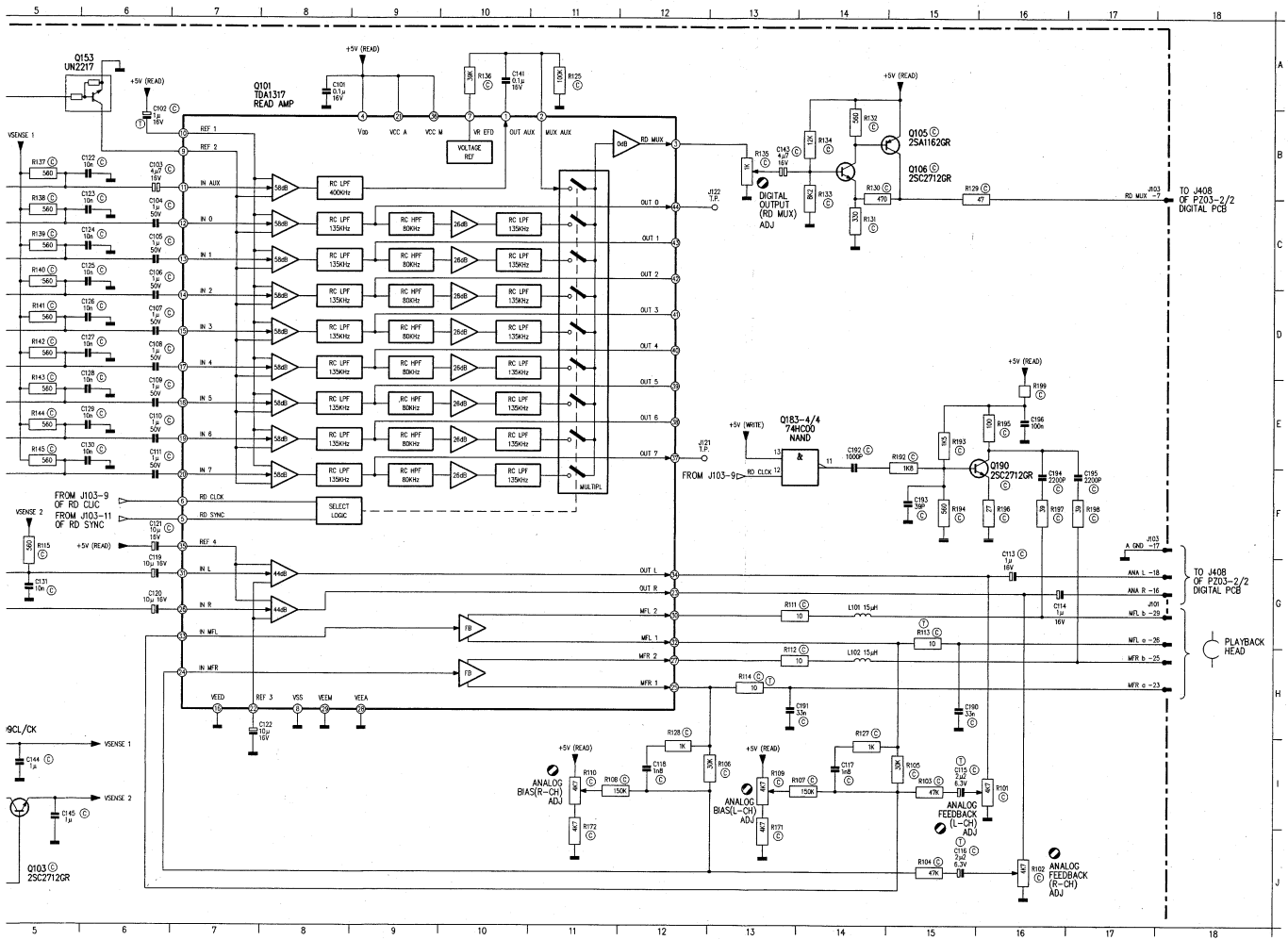
C401	E2	R411	B3
C402	A1	R412	C5
C412	C4	R413	C5
C441	D6	R415	B6
C442	D7	R416	B4
C443	E3	R441	E4
C444	E7	R442	D6
C445	C7	R443	E6
C446	D3	R444	D6
C448	B7	R445	D7
C449	C7	R447	C4
C451	C3	R450	C7
C452	C3	R451	C7
C453	C3	R452	C7
C454	D3	R453	C7
C455	C3	R454	C7
C457	E3	R455	C7
C479	B6	R456	D3
C483	C6	R457	E3
C484	B6	R477	E5
J408	E6	R478	E5
J409	D6	R479	B6
J410	A2	R484	B6
J411	A7	R491	E5
J441	C7	R492	E5
J442	B8	R493	C3
L441	E8	R494	E5
Q401	D2	R495	E5
Q402	B2	R496	E5
Q410	B5	R497	C4
Q411	B3	RJ01	C6
Q412	B3	RJ02	C5
Q441	D4	RJ03	C5
Q443	D7	RJ04	C5
Q444	B7		

READ WRITE PCB A SIDE (PW03)

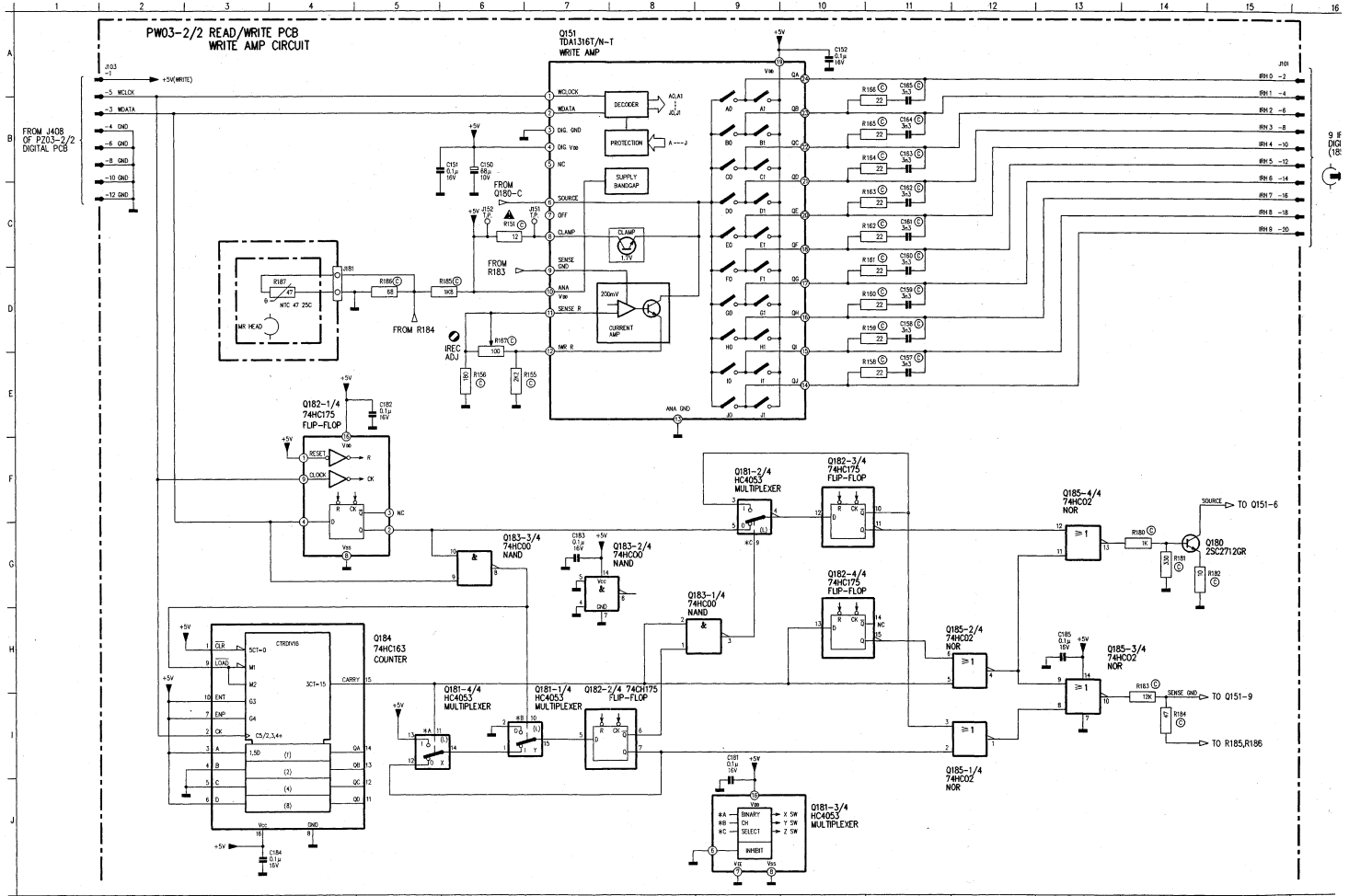


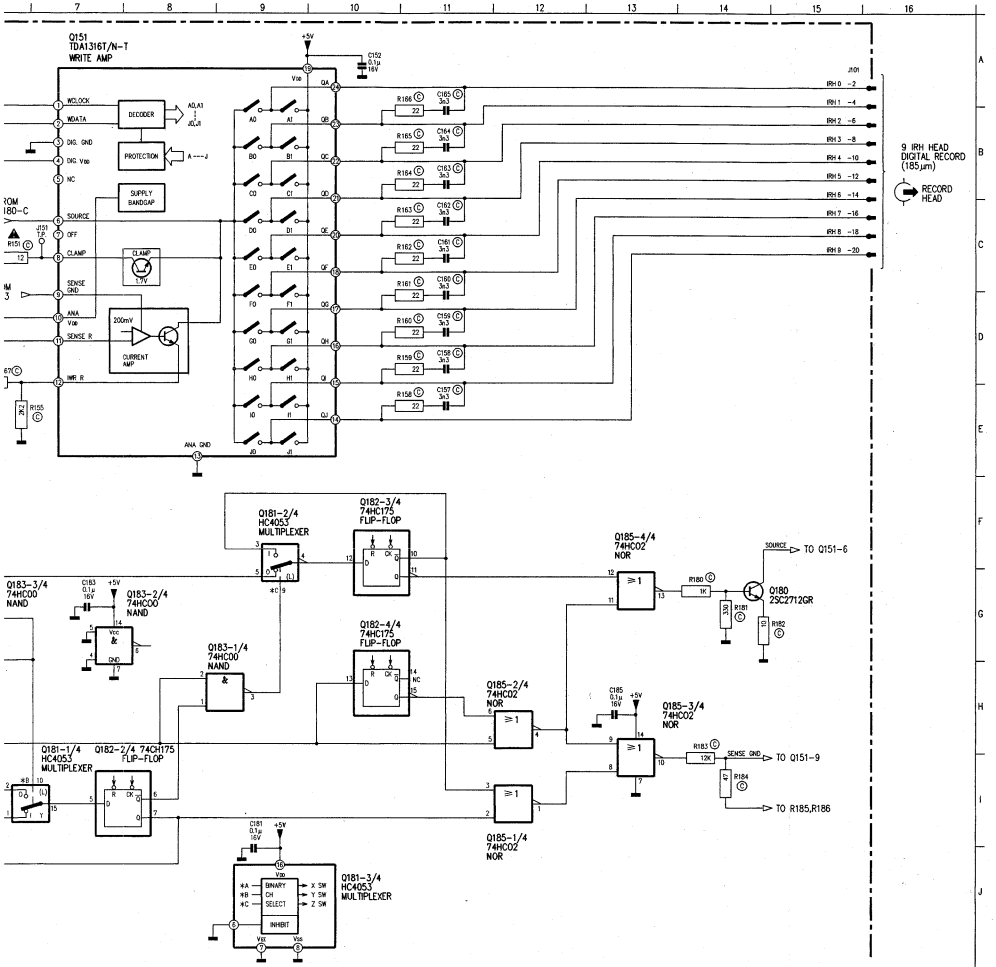
C101	B3	Q101	C3
C103	B5	Q102	D2
C104	B4	Q105	B5
C105	B4	Q106	C4
C106	B4	Q153	B4
C107	B3	Q181	A5
C108	B3	Q182	B6
C109	B3	Q183	C6
C110	B3	Q185	D5
C111	B2	Q190	A1
C112	B2	R103	C1
C115	C1	R104	B1
C116	C1	R105	C1
C117	C2	R106	B1
C118	B2	R107	C1
C119	C2	R108	B1
C120	B2	R115	A2
C120	B4	R116	A2
C121	C2	R121	D2
C122	A4	R122	D2
C123	A4	R125	C4
C124	A4	R127	C2
C125	A4	R128	B2
C126	A3	R129	B5
C127	A3	R130	B5
C128	A3	R131	C5
C129	A3	R132	B4
C130	A2	R133	C5
C131	A2	R134	C4
C132	A2	R136	C4
C133	D1	R137	B4
C134	D3	R138	B4
C135	D3	R139	B4
C137	D2	R140	B4
C138	D2	R141	B3
C140	D4	R142	B3
C141	C4	R143	B3
C143	C4	R144	B3
C150	D5	R145	B2
C181	A5	R151	C4
C182	B5	R154	A2
C183	C5	R185	C4
C190	A2	R186	C4
C191	A2	R193	B1
C193	B1	R194	B1
C196	B1	R195	B1
C197	D3	R196	A1
C198	C4	R199	C3





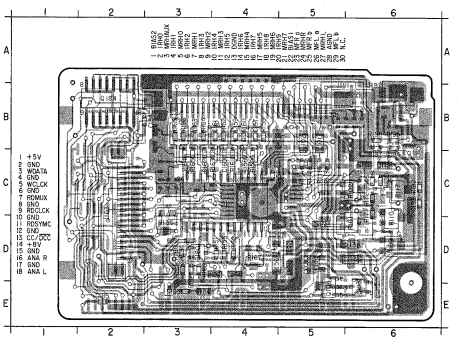
C101	A8	J103-3	B2
C102	B6	J103-30	F2
C103	B6	J103-5	C2
C104	C6	J103-7	B18
C105	C6	J103-7	C2
C106	D6	J103-9	D2
C107	D6	J103-9	I2
C108	D6	J111	F3
C109	E6	J112	F2
C110	E6	J121	E12
C111	E6	J122	C13
C113	G16	L101	G14
C114	G16	L102	H14
C115	I15	Q101	B7
C116	J15	Q102	J4
C117	I14	Q103	I5
C118	I12	Q104	I4
C119	G6	Q105	B15
C120	G6	Q106	B14
C121	F6	Q153	A6
C122	B6	Q183-4/4	E14
C122	H7	Q190	E16
C123	C6	R101	I16
C124	C6	R102	J16
C125	C6	R103	I15
C126	D8	R104	J15
C127	D8	R105	I15
C128	E8	R106	I13
C129	E6	R107	I14
C130	E6	R108	I11
C131	G5	R109	I13
C132	G4	R110	I11
C133	I3	R111	G13
C134	J2	R112	H13
C135	J2	R113	G15
C137	J3	R114	H13
C138	J3	R115	F5
C141	A10	R116	F4
C143	B13	R120	F3
C144	I5	R121	I4
C145	I5	R122	J4
C148	I3	R125	A11
C190	H15	R127	I14
C191	H13	R128	I12
C192	E14	R129	B15
C193	F15	R130	B14
C194	F16	R131	C14
C195	F17	R132	B14
C196	E16	R133	B14
J103-1	B2	R134	B14
J103-11	D2	R135	B13
J103-11	I2	R136	A10
J103-13	A2	R137	B5
J103-13	F2	R138	C5
J103-14	I2	R139	C5
J103-15	D2	R140	C5
J103-15	I2	R141	D5
J103-16	G18	R142	D5
J103-17	E2	R143	E5
J103-17	F18	R144	E5
J103-17	J2	R145	E5
J103-18	G18	R146	F3
J103-19	E2	R171	J13
J103-2	J2	R172	J11
J103-21	F2	R192	E15
J103-22	F2	R193	E15
J103-23	H18	R194	F15
J103-24	G2	R195	E16
J103-25	H18	R196	F16
J103-26	G18	R197	F16
J103-27	G2	R198	F17
J103-28	G2	R199	E16
J103-29	G18		


PW03-2/2 READ/WRITE PCB
WRITE AMP CIRCUIT
Q151
TDA1316T/N-T
WRITE AMP
FROM J408 OF PZ03-2/2 DIGITAL PCB
+5V(WRITE)
WCLOCK
WDATA
DIG. GND
DIG. Vcc
NC
SOURCE
OFF
CLAMP
SENSE GND
ANA Vcc
SENSE R
WR R
DECODER
PROTECTION
SUPPLY BANDGAP
CLAMP
1.7V
200mV
CURRENT AMP
ANA GND
FROM Q180-C
FROM R183
FROM R184
MR HEAD
IREC ADJ
Q182-1/4
74HC175
FLIP-FLOP
Q183-3/4
74HC00
NAND
Q183-2/4
74HC00
NAND
Q183-1/4
74HC00
NAND
Q181-2/4
HC4053
MULTIPLEXER
Q182-3/4
74HC175
FLIP-FLOP
Q182-4/4
74HC175
FLIP-FLOP
Q185-4/4
74HC02
NOR
Q185-2/4
74HC02
NOR
Q185-3/4
74HC02
NOR
Q185-1/4
74HC02
NOR
Q184
74HC163
COUNTER
Q181-4/4
HC4053
MULTIPLEXER
Q181-1/4
HC4053
MULTIPLEXER
Q182-2/4 74CH175
FLIP-FLOP
Q181-3/4
HC4053
MULTIPLEXER
Q180
2SC2712GR
TO Q151-6
TO Q151-9
TO R185,R186
J101
IRH 0
IRH 1
IRH 2
IRH 3
IRH 4
IRH 5
IRH 6
IRH 7
IRH 8
IRH 9

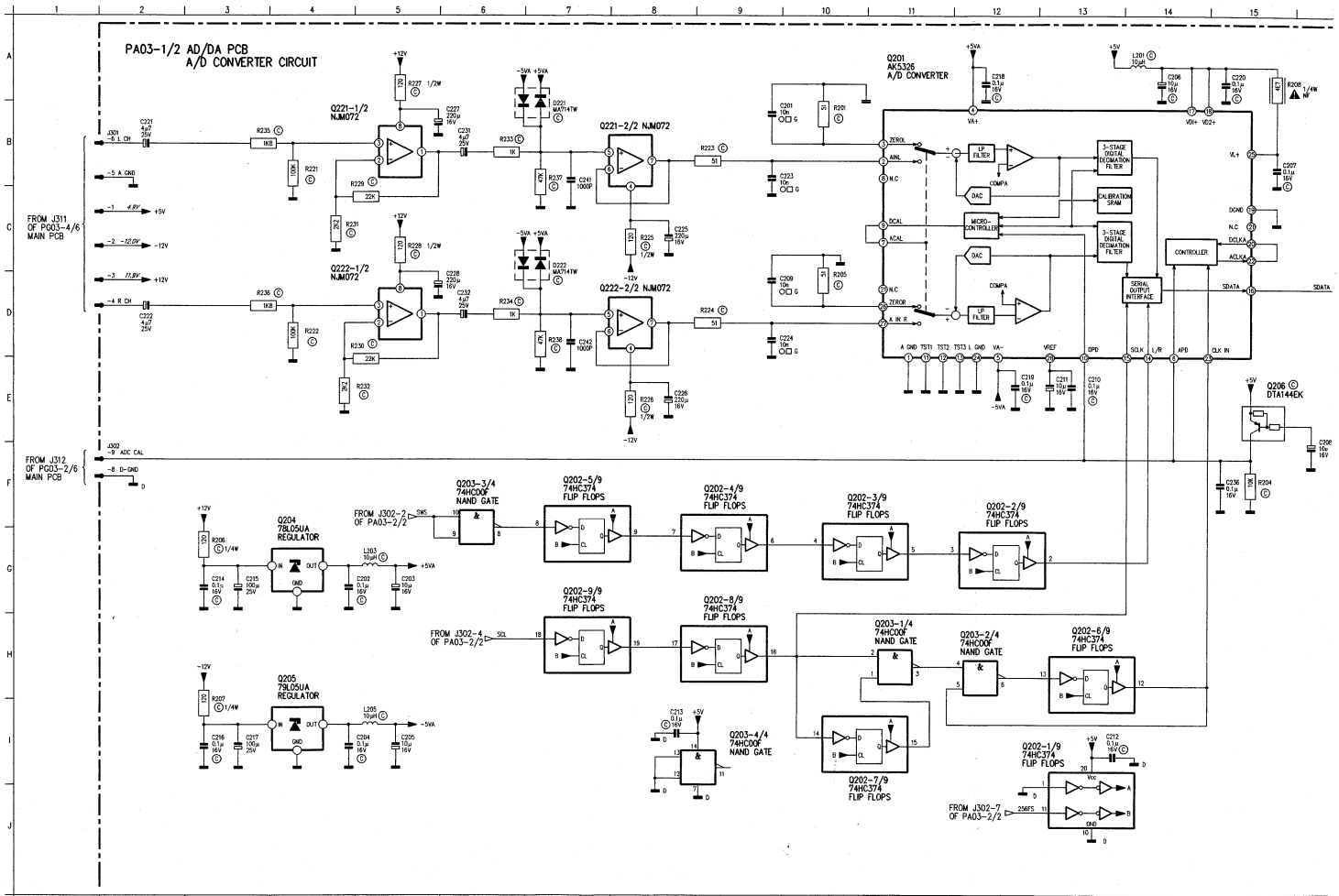


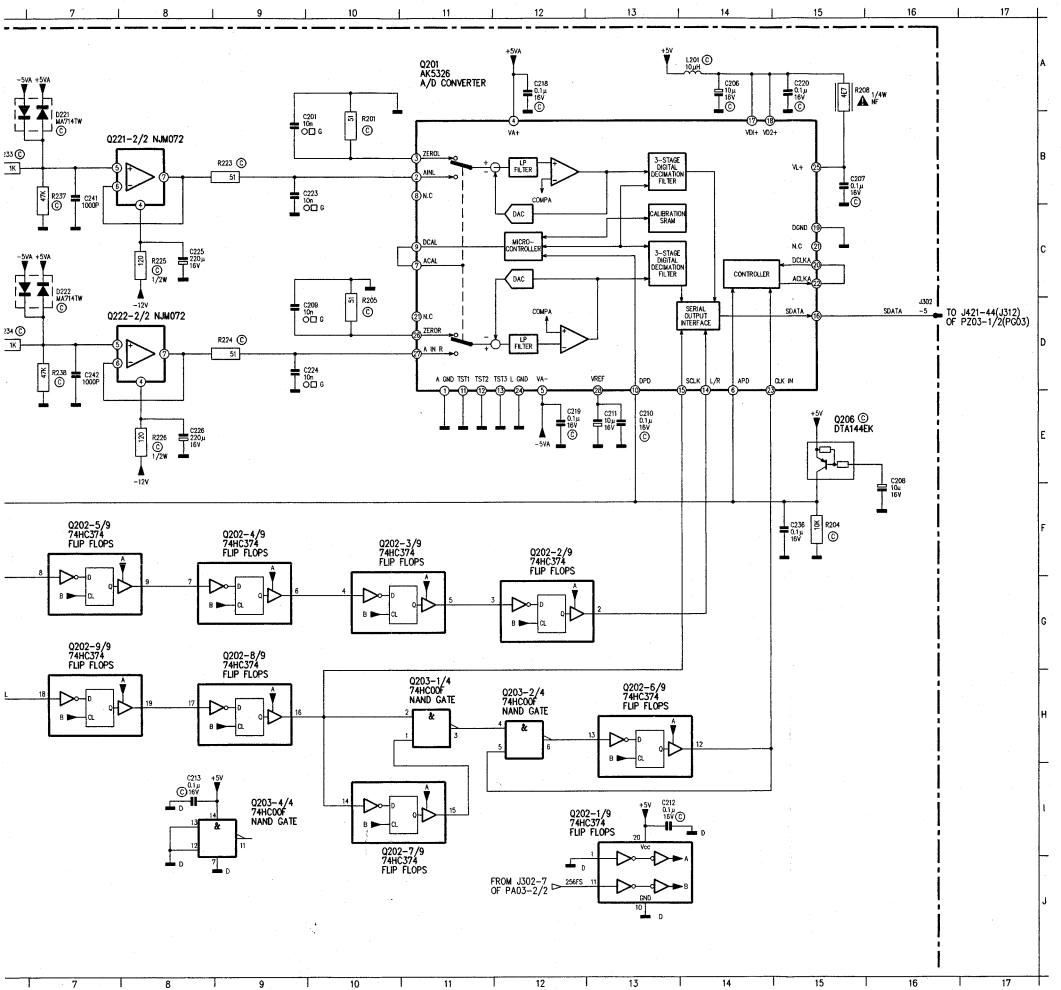
C113	D6	C195	B6	R109	D6	R163	C4
C114	D6	J101	B4	R110	D6	R164	B3
C144	D5	J103	C2	R111	C5	R165	C3
C145	D5	J111	C6	R112	C5	R166	B3
C151	D4	J112	C6	R113	C5	R167	D4
C152	C4	J121	D5	R114	C5	R171	C6
C157	B4	J122	D5	R117	C6	R172	C6
C158	C4	J151	D4	R120	C6	R180	D3
C159	B4	J152	D4	R135	D3	R181	D3
C160	C4	J181	B6	R146	C6	R182	D3
C161	B4	L101	B5	R152	D4	R183	E3
C162	C3	L102	B5	R153	D4	R184	E3
C163	B3	Q103	E6	R155	D4	R188	D3
C164	C3	Q104	E5	R156	D4	R192	C6
C165	B3	Q151	C4	R158	B4	R197	B6
C184	B3	Q180	D3	R159	C4	R198	B6
C185	E2	Q184	B2	R160	B4		
C192	C6	R101	D6	R161	C4		
C194	B6	R102	C6	R162	B4		

READ/WRITE PCB B SIDE (PW03)



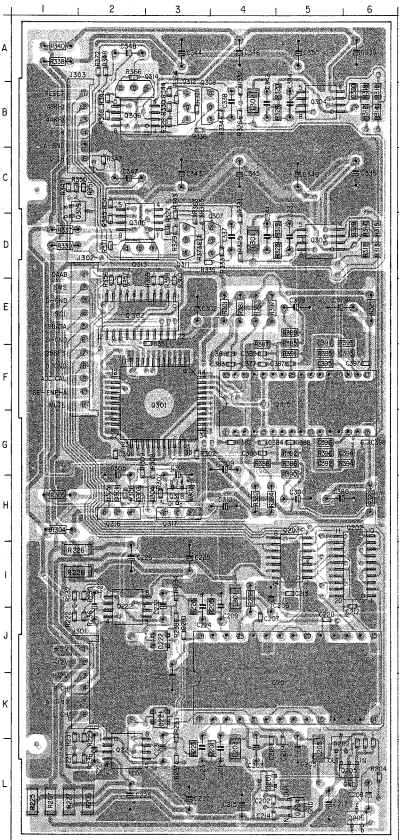
C150	B6	J101-16	C16	Q180	G14	R156	E6
C151	B5	J101-18	C16	Q181-1/4	I7	R158	E11
C152	A10	J101-2	A16	Q181-2/4	F9	R159	D11
C157	E11	J101-20	C16	Q181-3/4	J9	R160	D11
C158	D11	J101-4	A16	Q181-4/4	I5	R161	D11
C159	D11	J101-6	B16	Q182-1/4	F4	R162	C11
C160	D11	J101-8	B16	Q182-2/4	I7	R163	C11
C161	C11	J103-1	A2	Q182-3/4	F10	R164	B11
C162	C11	J103-10	C2	Q182-4/4	H10	R165	B11
C163	B11	J103-12	C2	Q183-1/4	H9	R166	B11
C164	B11	J103-3	B2	Q183-2/4	G7	R167	D6
C165	B11	J103-4	B2	Q183-3/4	G6	R180	G14
C182	E5	J103-5	A2	Q184	H3	R181	G14
C183	G7	J103-6	B2	Q185-1/4	I12	R182	G14
C184	J3	J103-8	B2	Q185-2/4	H12	R183	I14
C185	H13	J151	C7	Q185-3/4	I13	R184	I14
J101-10	B16	J152	C6	Q185-4/4	G13	R185	D6
J101-12	B16	J181	D4	R151	C6	R186	D5
J101-14	B16	Q151	J7	R155	E6	R187	D4


PA03-1/2 AD/DA PCB
A/D CONVERTER CIRCUIT
Q201
AK5326
A/D CONVERTER
Q221-1/2
NJM072
Q221-2/2 NJM072
Q222-1/2
NJM072
Q222-2/2 NJM072
FROM J311
OF PG03-4/6
MAIN PCB
FROM J312
OF PG03-2/6
MAIN PCB
Q204
78L05UA
REGULATOR
Q205
79L05UA
REGULATOR
Q203-3/4
74HC00F
NAND GATE
Q202-5/9
74HC374
FLIP FLOPS
Q202-4/9
74HC374
FLIP FLOPS
Q202-3/9
74HC374
FLIP FLOPS
Q202-2/9
74HC374
FLIP FLOPS
Q202-9/9
74HC374
FLIP FLOPS
Q202-8/9
74HC374
FLIP FLOPS
Q203-1/4
74HC00F
NAND GATE
Q203-2/4
74HC00F
NAND GATE
Q202-6/9
74HC374
FLIP FLOPS
Q203-4/4
74HC00F
NAND GATE
Q202-7/9
74HC374
FLIP FLOPS
Q202-1/9
74HC374
FLIP FLOPS
Q206
DTA144EK
FROM J302-2
OF PA03-2/2
FROM J302-4
OF PA03-2/2
FROM J302-7
OF PA03-2/2
3-STAGE
DIGITAL
DECIMATION
FILTER
CALIBRATION
SRAM
MICRO-
CONTROLLER
CONTROLLER
SERIAL
OUTPUT
INTERFACE
LP
FILTER
DAC
COMPA
SDATA
DCLKA
ACLKA
DGND
VA+
VD+
VREF
DPD
SCLK
L/R
APD
CLK IN



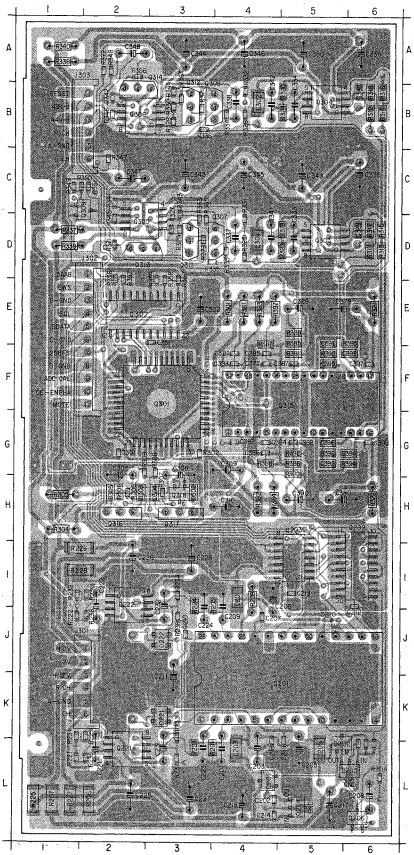
C201	B9
C202	G4
C203	G5
C204	I4
C205	I5
C206	A14
C207	B15
C208	F16
C209	D9
C210	E13
C211	E13
C212	I13
C213	I8
C214	G3
C215	G3
C216	I3
C217	I3
C218	A12
C219	E12
C220	A15
C221	B2
C222	D2
C223	B9
C224	D9
C225	C8
C226	E8
C227	B5
C228	D5
C231	B6
C232	D6
C236	F15
C241	B7
C242	D7
D221	B7
D222	C7
J301-1	C2
J301-2	C2
J301-3	D2
J301-4	D2
J301-5	B2
J301-6	B2
J302-5	D16
J302-8	F2
J302-9	F2
L201	A14
L203	G5
L205	I5
Q201	B11
Q202-1/9	I13
Q202-2/9	G12
Q202-3/9	G10
Q202-4/9	F9
Q202-5/9	F7
Q202-6/9	H13
Q202-7/9	I10
Q202-8/9	H9
Q202-9/9	H7
Q203-1/4	H11
Q203-2/4	H12
Q203-3/4	F6
Q203-4/4	I9
Q204	G4
Q205	I4
Q206	E15
Q221-1/2	B5
Q221-2/2	B8
Q222-1/2	D5
Q222-2/2	D8
R201	B10
R204	F15
R205	D10
R206	G3
R207	I3
R208	A15
R221	B4
R222	D4
R223	B9
R224	D9
R225	C8
R226	E8
R227	A5
R228	C5
R229	C5
R231	C4
R232	E4
R233	B6
R234	D6
R235	B3
R236	D3
R237	B7
R238	D7

AD/DA PCB (PA03)



C201	L-4	Q201	K-5	R344	B-3		
C202	L-4	Q202	I-6	R345	D-2		
C203	L-4	Q203	I-5	R346	B-2		
C205	L-5	Q204	L-5	R347	C-2		
C206	I-4	Q205	L-6	R348	A-2		
C207	J-4	Q206	L-6	R349	C-1		
C208	L-6	Q221	L-2	R350	C-1		
C209	I-4	Q222	I-2	R351	C-2		
C210	J-3	Q301	F-3	R356	E-2		
C211	K-3	Q302	E-2	R357	E-2		
C212	I-6	Q303	D-5	R358	E-3		
C213	I-5	Q304	B-5	R359	E-3		
C214	L-4	Q305	D-2	R360	E-3		
C215	L-4	Q306	B-2	R363	D-3		
C217	L-5	Q307	D-3	R364	B-3		
C218	L-4	Q308	B-3	R365	D-3		
C219	L-5	Q309	C-2	R366	A-2		
C220	J-5	Q311	D-3	R371	D-2		
C221	L-2	Q312	B-3	R372	A-2		
C222	I-2	Q313	D-2	R373	D-3		
C223	L-3	Q314	B-2	R374	B-3		
C224	I-3	Q315	F-5	R381	E-4		
C225	L-2	Q316	H-2	R382	H-4		
C226	I-2	Q317	H-3	R383	E-4		
C227	L-3	Q318	H-3	R384	H-4		
C228	I-3	R201	L-4	R385	E-5		
C231	L-3	R204	L-6	R386	G-5		
C232	I-3	R205	L-4	R387	F-4		
C301	G-2	R206	L-2	R388	G-4		
C302	E-3	R207	L-1	R389	E-5		
C305	G-2	R208	I-4	R390	G-5		
C306	G-3	R221	L-1	R391	F-5		
C309	G-4	R222	J-1	R392	G-5		
C310	H-4	R223	L-3	R393	E-6		
C329	D-5	R224	I-3	R394	G-6		
C330	B-6	R225	L-1	R395	F-5		
C333	D-5	R226	I-1	R396	G-5		
C334	B-5	R227	L-1	R397	E-4		
C335	C-6	R228	I-1				
C336	A-5	R229	K-2				
C338	B-4	R230	I-2				
C341	D-4	R231	K-1				
C342	B-4	R232	I-1				
C343	C-3	R233	K-3				
C344	A-3	R234	I-3				
C345	C-4	R235	L-2				
C346	A-4	R236	I-2				
C347	C-2	R237	L-3				
C348	A-2	R238	J-3				
C349	C-5	R301	E-4				
C350	A-5	R302	G-3				
C351	E-3	R304	H-1				
C377	F-4	R305	H-1				
C379	E-5	R306	H-2				
C380	H-5	R307	H-3				
C381	F-4	R308	G-3				
C382	G-4	R309	G-2				
C383	F-4	R311	D-6				
C384	G-4	R312	B-6				
C385	F-4	R313	D-6				
C386	G-4	R314	B-6				
C387	F-5	R315	D-6				
C388	G-5	R316	B-6				
C389	E-5	R317	D-6				
C390	H-5	R318	B-6				
C391	E-5	R319	D-5				
C392	G-5	R320	B-5				
C393	F-6	R321	E-6				
C394	G-6	R322	H-6				
C395	F-5	R323	D-5				
C396	G-5	R324	B-5				
C397	F-6	R325	D-4				
C398	G-6	R326	B-4				
D201	L-4	R327	D-3				
D202	L-5	R328	B-3				
D221	K-3	R329	D-3				
D222	J-3	R330	B-3				
D301	H-2	R331	D-4				
D302	H-3	R332	B-4				
D303	H-2	R333	D-4				
D304	H-3	R334	B-4				
D305	H-2	R335	D-3				
J301	J-2	R336	B-3				
J302	D-2	R337	D-1				
J303	B-1	R338	A-1				
L201	I-4	R339	D-1				
L203	L-4	R340	A-1				
L205	L-5	R341	C-2				
L301	D-4	R342	B-2				
L302	B-4	R343	D-3				

AD/DA PCB (PA03)



WD0050201-4

R344	B-3	R356	E-2	R366	A-2	R384	H-4	R392	G-5		
R345	D-2	R357	E-2	R371	D-2	R385	E-5	R393	E-6		
R346	B-2	R358	E-3	R372	A-2	R386	G-5	R394	G-6		
R347	C-2	R359	E-3	R373	D-3	R387	F-4	R395	F-5		
R348	A-2	R360	E-3	R374	B-3	R388	G-4	R396	G-5		
R349	C-1	R363	D-3	R381	E-4	R389	E-5	R397	E-4		
R350	C-1	R364	B-3	R382	H-4	R390	G-5				
R351	C-2	R365	D-3	R383	E-4	R391	F-5				

Q201	L-4	Q201	K-5								
Q202	L-4	Q202	I-6								
Q203	L-4	Q203	I-5								
Q205	L-5	Q204	I-5								
Q206	I-4	Q205	L-6								
Q207	J-4	Q206	L-6								
Q208	L-6	Q221	L-2								
Q209	I-4	Q222	I-2								
Q210	J-3	Q301	F-3								
Q211	K-3	Q302	E-2								
Q212	I-6	Q303	D-5								
Q213	I-5	Q304	B-5								
Q214	L-4	Q305	D-2								
Q215	I-4	Q306	B-2								
Q217	L-5	Q307	D-3								
Q218	L-4	Q308	B-3								
Q219	L-5	Q309	C-2								
Q220	J-5	Q311	D-3								
Q221	L-2	Q312	B-3								
Q222	I-2	Q313	D-2								
Q223	L-3	Q314	B-2								
Q224	I-3	Q315	F-5								
Q225	L-2	Q316	H-2								
Q226	I-2	Q317	H-3								
Q227	L-3	Q318	H-3								
Q228	I-3	R201	L-4								
Q231	L-3	R204	L-6								
Q232	I-3	R205	I-4								
Q301	G-2	R206	L-2								
Q302	E-3	R207	L-1								
Q305	G-2	R208	I-4								
Q306	G-3	R221	L-1								
Q309	G-4	R222	J-1								
Q310	H-4	R223	L-3								
Q329	D-6	R224	I-3								
Q330	B-6	R225	L-1								
Q333	D-5	R226	I-1								
Q334	B-5	R227	L-1								
Q335	C-6	R228	I-1								
Q336	A-6	R229	K-2								
Q338	B-4	R230	I-2								
Q341	D-4	R231	K-1								
Q342	B-4	R232	I-1								
Q343	C-3	R233	K-3								
Q344	A-3	R234	I-3								
Q345	C-4	R235	L-2								
Q346	A-4	R236	I-2								
Q347	C-2	R237	L-3								
Q348	A-2	R238	J-3								
Q349	C-5	R301	E-4								
Q350	A-5	R302	G-3								
Q351	E-3	R304	H-1								
Q377	F-4	R305	H-1								
Q379	E-5	R306	H-2								
Q380	H-5	R307	H-3								
Q381	F-4	R308	G-3								
Q382	G-4	R309	G-2								
Q383	F-4	R311	D-8								
Q384	G-4	R312	B-6								
Q385	F-4	R313	D-6								
Q386	G-4	R314	B-6								
Q387	F-5	R315	D-6								
Q388	G-5	R316	B-8								
Q389	E-5	R317	D-8								
Q390	H-5	R318	B-8								
Q391	E-5	R319	D-5								
Q392	G-5	R320	B-5								
Q393	F-6	R321	E-6								
Q394	G-6	R322	H-6								
Q395	F-5	R323	D-5								
Q396	G-5	R324	B-5								
Q397	F-6	R325	D-4								
Q398	G-6	R326	B-4								
D201	L-4	R327	D-3								
D202	L-5	R328	B-3								
D221	K-3	R329	D-3								
D222	J-3	R330	B-3								
D301	H-2	R331	D-4								
D302	H-3	R332	B-4								
D303	H-2	R333	D-4								
D304	H-3	R334	B-4								
D305	H-2	R335	D-3								
J301	J-2	R336	B-3								
J302	D-2	R337	D-1								
J303	B-1	R338	A-1								
L201	I-4	R339	D-1								
L203	L-4	R340	A-1								
L205	L-5	R341	C-2								
L301	D-4	R342	B-2								
L302	B-4	R343	D-3								

C301	B-10	R321	A-16								
C302	B-10	R322	H-16								
C305	I-11	R323	D-20								
C306	J-11	R324	F-20								
C309	I-12	R325	I-4								
C310	J-12	R326	I-17								
C329	C-18	R327	H-6								
C330	E-19	R328	I-19								
C333	D-21	R329	H-5								
C334	F-21	R330	I-19								
C335	D-22	R331	I-4								
C336	G-22	R332	I-17								
C337	I-5	R333	I-5								
C338	J-16	R334	J-16								
C341	D-20	R335	J-4								
C342	F-20	R336	J-4								
C343	H-8	R337	C-22								
C344	I-21	R338	E-22								
C345	I-6	R339	D-22								
C346	J-19	R340	F-22								
C347	I-9	R341	I-7								
C348	I-22	R342	I-20								
C349	C-22	R343	H-4								
C350	E-22	R344	I-17								
C351	B-4	R345	I-8								
C377	E-12	R346	J-21								
C379	B-16	R347	I-9								
C380	H-16	R348	J-22								
C381	B-13	R349	J-2								
C382	G-12	R350	J-3								
C383	C-12	R351	J-3								
C384	H-13	R357	D-3								
C385	B-14	R359	E-3								
C386	H-14	R360	E-3								
C387	B-15	R363	H-5								
C388	E-15	R364	H-18								
C389	B-15	R365	G-5								
C390	H-15	R366	H-18								
C391	D-17	R371	G-6								
C392	F-17	R372	G-19								
C393	C-17	R373	H-6								
C394	E-17	R374	H-19								
C395	D-17	R376	D-2								
C396	F-17	R381	B-13								
C397	H-15	R382	F-12								
C398	H-16	R383	C-12								
D301	I-11	R384	H-13								
D302	J-11	R385	A-14								
D303	I-12	R386	H-14								
D304	J-11	R387	B-14								
D305	I-11	R388	H-14								
J302	B-2	R389	A-15								
J303	F-2	R390	H-15								
J303	H-23	R391	B-16								
L301	D-11	R392	H-16								
L302	F-21	R393	C-17								
Q301	B-7	R394	E-17								
Q302	B-4	R395	D-17								
Q303-1/2	D-19	R396	F-17								
Q303-1/2	F-19	R397	D-12								
Q303-2/2	C-21										
Q304-2/2	F-21										
Q305-1/2	I-8										
Q305-2/2	I-8										
Q306	I-21										
Q306-1/2	I-19										
Q307	J-4										
Q308	J-18										
Q309	J-3										
Q311	H-6										
Q312	H-19										
Q313	G-6										
Q315	B-13										
Q316	H-11										
Q317	J-11										
Q318	J-12										
R301	A-11										
R302	G-10										
R304	H-11										
R305	J-11										
R306	I-11										
R307	J-11										
R308	J-12										
R309	I-13										
R311	C-18										
R312	E-18										
R313	D-18										
R314	F-18										
R315	D-18										
R316	F-18										
R317	C-19										
R318	E-19										
R319	D-20										
R320	F-20										

PA03-2/2 AD/DA PCB
D/A CONVERTER CIRCUIT

Q301 SAA7350 D/A CONVERTER

Q302 SM5840FS DIGITAL FILTER

Q315 TDA1547 D/A CONVERTER

FROM J421-42(J312-1) OF PZ03-1/2(PG03)
FROM J421-48(J312-4) OF PZ03-1/2(PG03)
FROM J421-50(J312-2) OF PZ03-1/2(PG03)
FROM J312 OF PG03-5/6
FROM J421-46(J312-7) OF PZ03-1/2(PG03)
FROM J312 OF PG03-2/6
TO Q309-E
To Q203-9,10
To Q202-11
To Q202-18
OF PA03-1/2
FROM J313 OF PG03-2/6 MAIN PCB
TO R372
TO R374
FROM Q303-7
FROM J302-10
DE-ENPHASIS
TO Q308
Q313 2SK372 GR/BL
Q311 2SK372 GR/BL
Q307 2SK372GR/BL
Q309 2SA812
Q305-2/2 NJM5532M
Q305-1/2 NJM5532M
Q316 2SD1762E/F
Q317 2SB1185E/F
Q318 2SA812
TO J303-6
FROM Q304-7
FROM R336

Q301
SAA7350
D/A CONVERTER

Q315
TDA1547
D/A CONVERTER

INPUT INTERFACE

CONTROL

SWITCHED CAPACITOR NETWORK

ONE-BIT INPUT

SWITCH DRIVERS

SWITCHED CAPACITOR NETWORK

Q303-2/2
NJM5532M

Q303-1/2
NJM5532M

Q304-2/2
NJM5532M

Q304-1/2
NJM5532M

Q305-2/2
NJM5532M

Q306-2/2
NJM5532M

Q306-1/2
NJM5532M

Q316
2SD1762E/F

Q317
2SB1185E/F

Q318
2SA812

Q314
2SK372GR/BL

Q312
2SK372GR/BL

Q308
2SK372GR/BL

FROM J303-3

FROM J303-2

FROM Q304-7

FROM R336

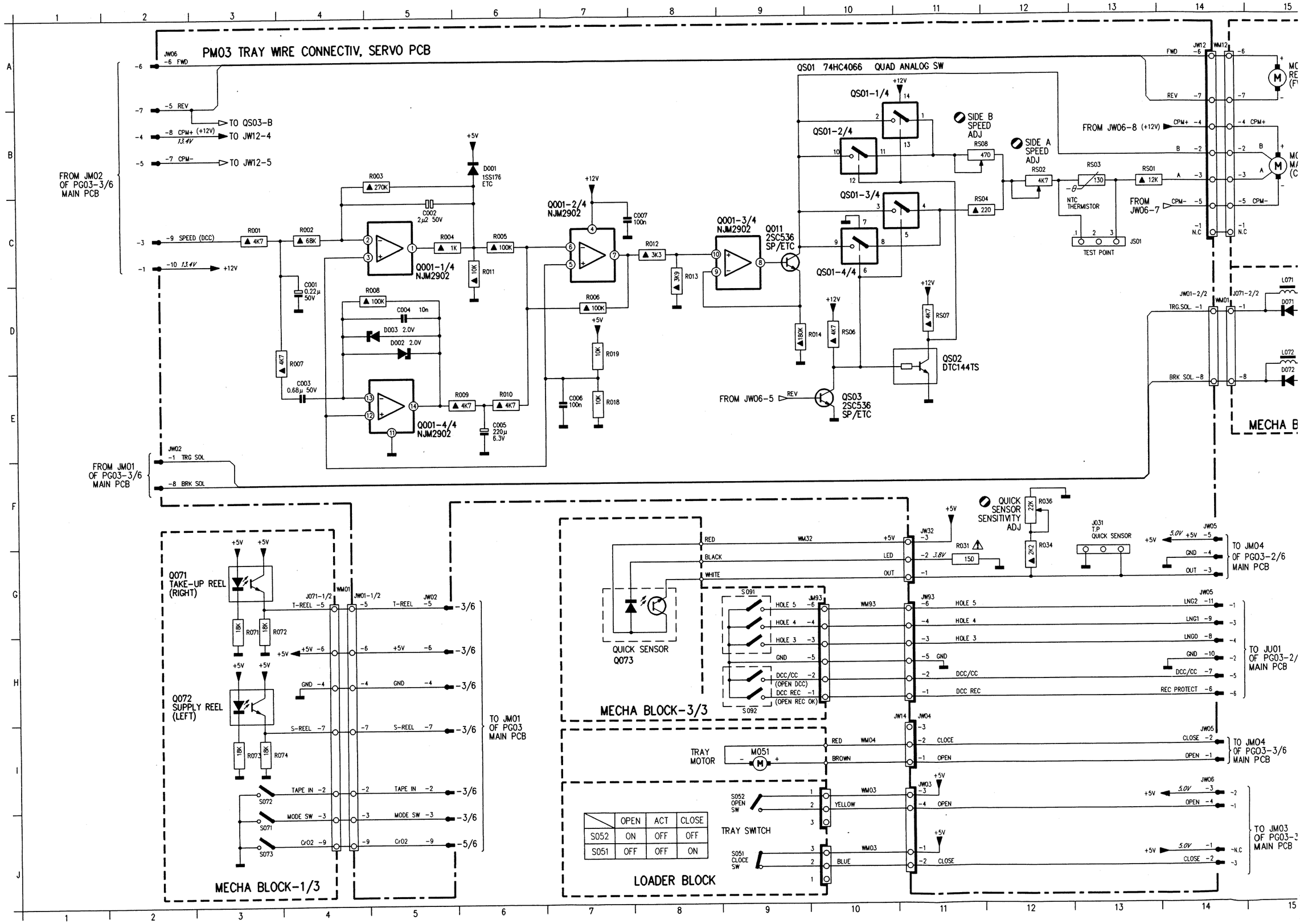
FROM C347

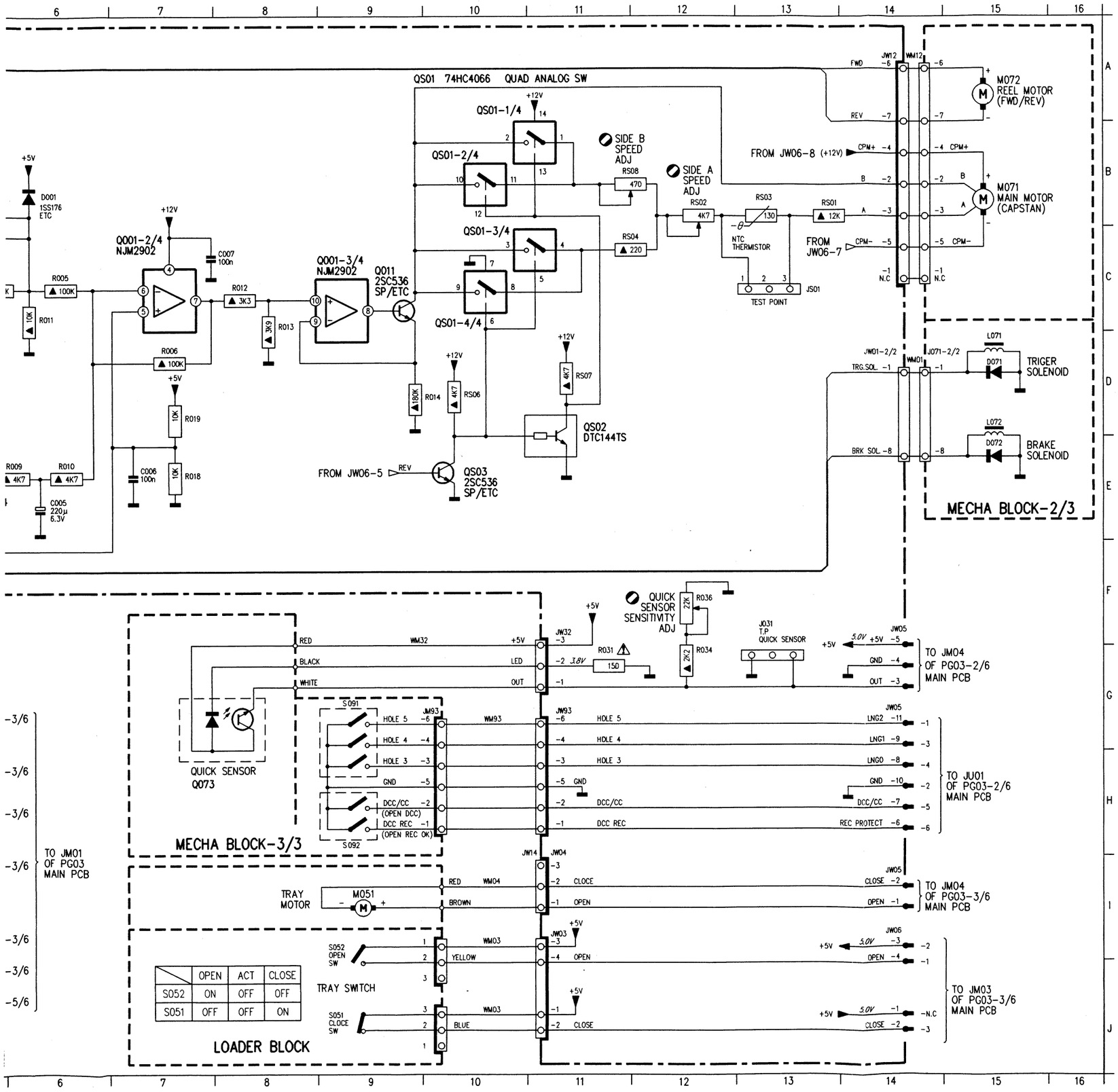
TO J313
OF PG03-5/6
MAIN PCB

To R325

To R326

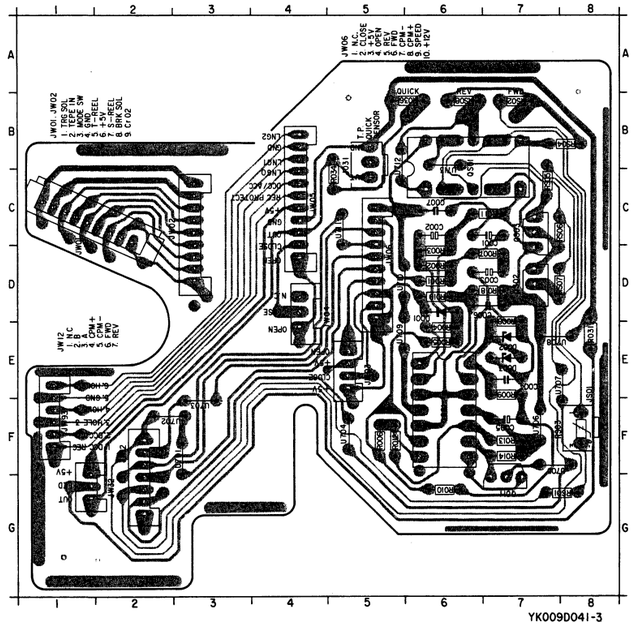
TO J303-6


PM03 TRAY WIRE CONNECTIV, SERVO PCB
FROM JM02 OF PG03-3/6 MAIN PCB
JW06 -6 FWD
-5 REV
TO QS03-B
-8 CPM+ (+12V) 13.4V
TO JW12-4
-7 CPM-
TO JW12-5
-9 SPEED (DCC)
-10 13.4V
+12V
FROM JM01 OF PG03-3/6 MAIN PCB
JW02
-1 TRG SOL
-8 BRK SOL
QS01 74HC4066 QUAD ANALOG SW
Q001-1/4 NJM2902
Q001-2/4 NJM2902
Q001-3/4 NJM2902
Q001-4/4 NJM2902
Q011 2SC536 SP/ETC
QS01-1/4
QS01-2/4
QS01-3/4
QS01-4/4
SIDE B SPEED ADJ
SIDE A SPEED ADJ
NTC THERMISTOR
TEST POINT
JS01
FROM JW06-8 (+12V)
FROM JW06-7
FROM JW06-5 REV
QS02 DTC144TS
QS03 2SC536 SP/ETC
D001 1SS176 ETC
D003 2.0V
D002 2.0V
C001 0.22µ 50V
C002 2µ2 50V
C003 0.68µ 50V
C004 10n
C005 220µ 6.3V
C006 100n
C007 100n
R001 4K7
R002 6BK
R003 270K
R004 1K
R005 100K
R006 100K
R007 4K7
R008 100K
R009 4K7
R010 4K7
R011 10K
R012 3K3
R013 3K9
R014 180K
R018 10K
R019 10K
RS01 12K
RS02 4K7
RS03 130
RS04 220
RS06 4K7
RS07 4K7
RS08 470
FWD
REV
CPM+
B
A
CPM-
N.C
MECHA B
JW01-2/2
TRG.SOL -1
BRK SOL -8
L071
D071
L072
D072
QUICK SENSOR SENSITIVITY ADJ
R036 22K
R034 2K2
R031 150
JO31 T.P QUICK SENSOR
TO JM04 OF PG03-2/6 MAIN PCB
Q071 TAKE-UP REEL (RIGHT)
Q072 SUPPLY REEL (LEFT)
R071 18K
R072 18K
R073 18K
R074 18K
T-REEL -5
+5V -6
GND -4
S-REEL -7
TAPE IN -2
MODE SW -3
CrO2 -9
S072
S071
S073
TO JM01 OF PG03 MAIN PCB
MECHA BLOCK-1/3
QUICK SENSOR Q073
S091
S092
HOLE 5
HOLE 4
HOLE 3
GND
DCC/CC (OPEN DCC)
DCC REC (OPEN REC OK)
MECHA BLOCK-3/3
TRAY MOTOR
M051
TRAY SWITCH
S052 OPEN SW
S051 CLOCE SW
LOADER BLOCK
OPEN
CLOSE
S052
ON
OFF
OFF
S051
OFF
OFF
ON
LED
WHITE
RED
BLACK
BROWN
YELLOW
BLUE
LNG2 -11
LNG1 -9
LNGD -8
REC PROTECT -6
TO JU01 OF PG03-2/ MAIN PCB
TO JM04 OF PG03-3/6 MAIN PCB
TO JM03 OF PG03-3 MAIN PCB



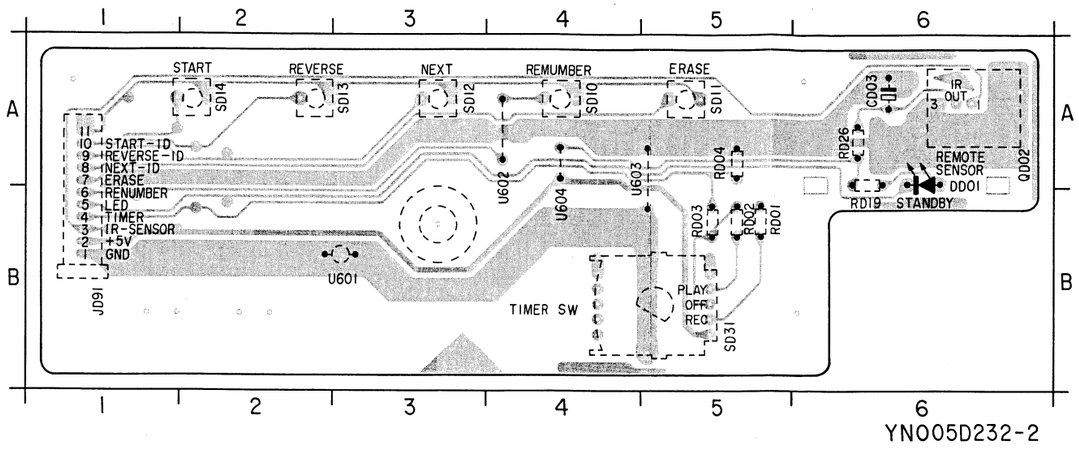
C001	D4	L071	D15
C002	C5	LO72	E15
C003	E4	M051	I9
C004	D5	M071	B15
C005	E6	M072	A15
C006	E7	Q001-1/4	C5
C007	C7	Q001-2/4	C7
D001	B6	Q001-3/4	C9
D002	D5	Q001-4/4	E5
D003	D5	Q011	C9
D071	D15	Q071	G3
DO72	E15	Q072	H3
J031	G13	Q073	G8
J071-1/2	G4	QS03	E10
J071-1/2-2I4		QS01-1/4	B11
J071-1/2-3J4		QS01-2/4	B10
J071-1/2-7I4		QS01-3/4	C11
J071-1/2-9J4		QS01-4/4	C10
J071-2/2	D14	QS02	D11
JM93	G10	R001	C3
JS01	C13	R002	C4
JW01-1/2	G4	R003	B5
JW01-1/2-2I4		R004	C5
JW01-1/2-3J4		R005	C6
JW01-1/2-7I4		R006	D7
JW01-1/2-9J4		R007	D4
JW01-2/2	D14	R008	D5
JW02-1	F2	R009	E6
JW02-2	I5	R010	E6
JW02-3	J5	R011	C6
JW02-4	H4	R012	C8
JW02-5	G5	R013	C8
JW02-6	H4	R014	D9
JW02-7	I5	R018	E7
JW02-8	F2	R019	D7
JW02-9	J5	R031	G11
JW03	I11	R034	G12
JW03-1	J11	R036	F12
JW03-2	J11	R071	G3
JW03-4	J11	R072	G3
JW04	I11	R073	I3
JW05-1	I14	R074	I3
JW05-10	H14	RS01	B13
JW05-11	G14	RS02	B12
JW05-2	I14	RS03	B13
JW05-3	G14	RS04	C11
JW05-4	G14	RS06	D10
JW05-5	G14	RS07	D11
JW05-6	H14	RS08	B11
JW05-7	H14	S052	I9
JW05-8	H14	S071	J3
JW05-9	G14	S072	I3
JW06-1	J14	S073	J3
JW06-10	C2	S091	G9
JW06-2	J14	S092	H9
JW06-3	I14	SD51	J9
JW06-4	J14	WM01	D14
JW06-5	A2	WM01	G4
JW06-6	A2	WM03	I10
JW06-7	B2	WM03	J10
JW06-8	B2	WM04	I10
JW06-9	C2	WM12-1	C14
JW12-1	C14	WM12-2	B14
JW12-2	B14	WM12-3	B14
JW12-3	B14	WM12-4	B14
JW12-4	B14	WM12-5	C14
JW12-5	C14	WM12-6	A14
JW12-6	A14	WM12-7	A14
JW12-7	A14	WM32	G9
JW32	G11	WM93	G10
JW93	G11		

TRAY WIRE CONNECTION, SERVO PCB (PM03)



C001	C7	R008	E7
C002	C6	R009	E7
C003	D7	R010	G6
C004	E7	R011	C7
C005	F7	R012	F5
C006	D7	R013	F7
C007	C6	R014	F7
D001	D6	R018	D7
D002	E7	R019	D6
D003	E7	R031	E8
J031	B5	R034	C5
JS01	F8	R036	B6
JW01	C1	RS01	G8
JW02	C3	RS02	B7
JW03	E5	RS03	F8
JW04	D4	RS04	B8
JW05	C4	RS05	C7
JW06	D5	RS06	C7
JW12	F2	RS07	D7
JW32	G1	RS08	B6
JW93	F1	U701	F3
Q001	F6	U702	F2
Q011	G7	U703	F3
QS01	B6	U704	F5
QS02	D7	U705	F7
QS03	C7	U706	F7
R001	D6	U707	E8
R002	D6	U708	E7
R003	D6	U709	E5
R004	E6	U710	D5
R005	E6	U711	C5
R006	F5	U712	B5
R007	D7	U713	B6

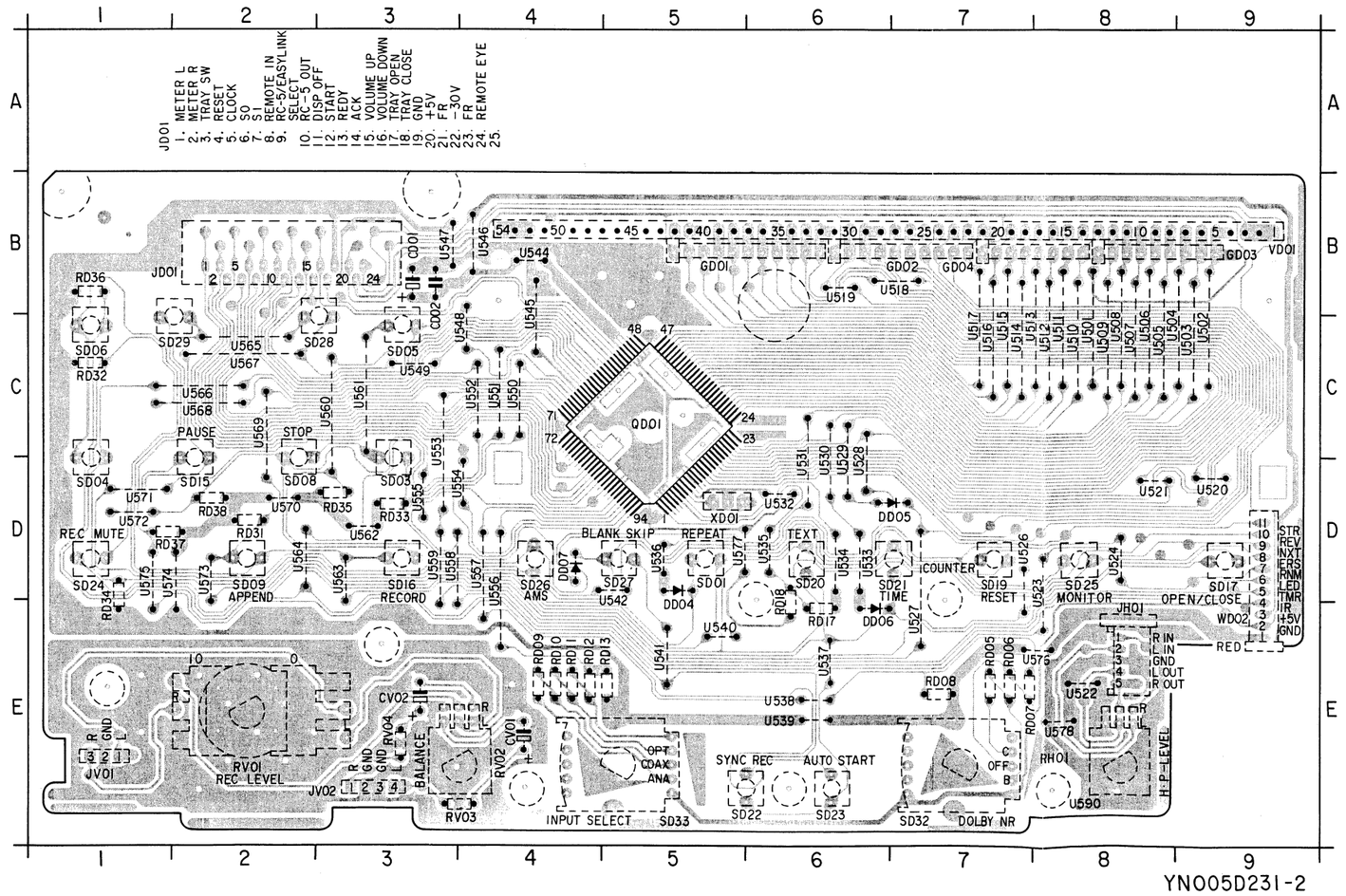
IR SENSOR PCB (PD04)



YN005D232-2

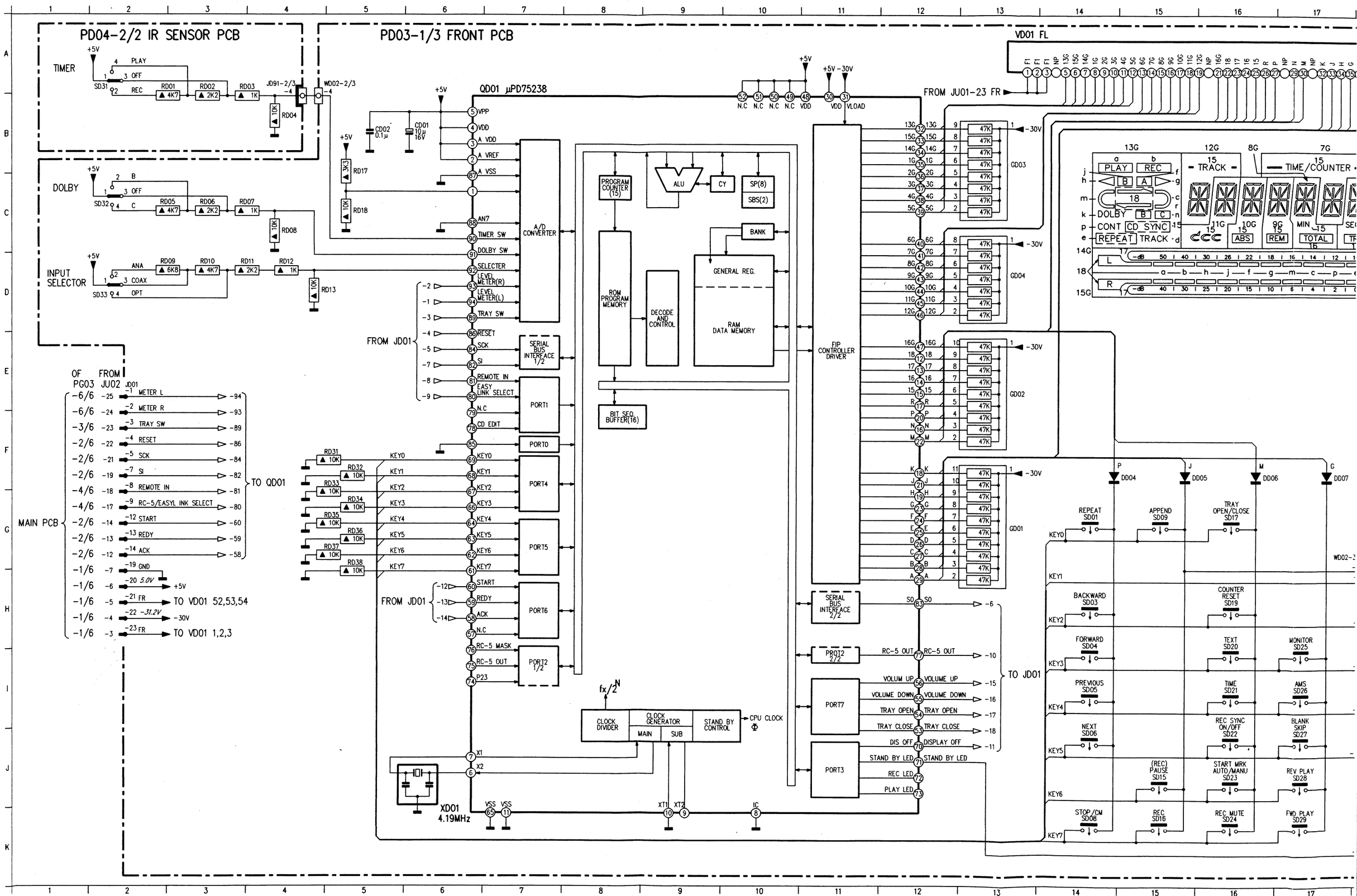
CD03	A-6
DD01	A-6
JD91	B-1
QD02	A-6
RD01	B-5
RD02	B-5
RD03	B-5
RD04	A-5
RD19	A-6
RD26	A-6
SD10	A-4
SD11	A-5
SD12	A-3
SD13	A-2
SD14	A-2
SD31	B-5
U601	B-3
U602	A-4
U603	A-5
U604	A-4

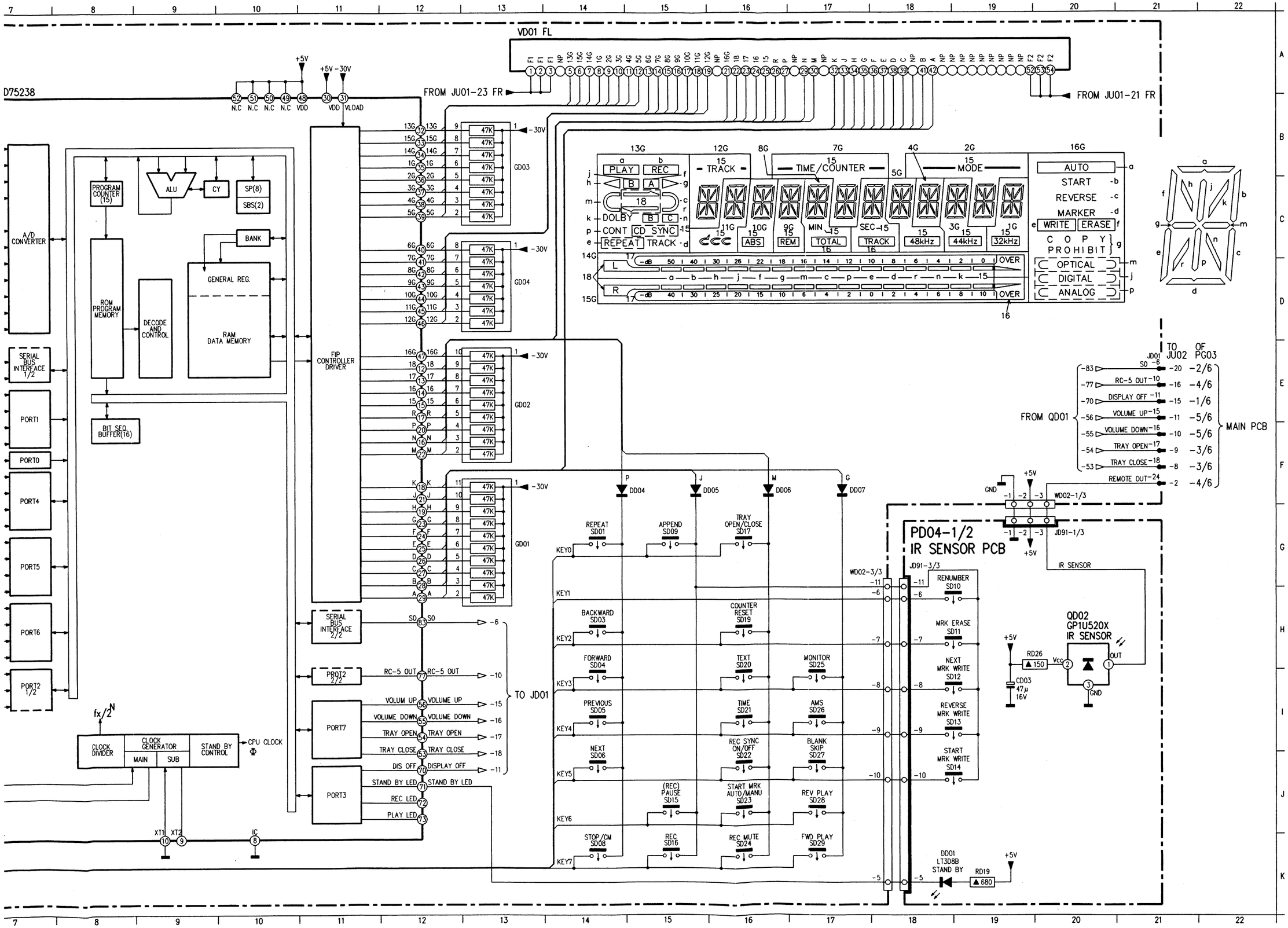
FRONT PCB (PD03)



YN005D231-2

CD01	B-3	SD17	D-9	U536	D-5
CD02	B-3	SD19	D-7	U537	E-6
CV01	E-4	SD20	D-6	U538	E-6
CV02	E-3	SD21	D-7	U539	E-6
DD05	D-7	SD22	E-6	U540	E-5
DD06	E-6	SD23	E-6	U541	E-5
DD07	D-4	SD24	D-1	U542	D-5
GD01	B-5	SD25	D-8	U544	B-4
GD02	B-7	SD26	D-4	U545	B-4
GD03	B-8	SD27	D-5	U545	C-4
GD04	B-7	SD28	C-3	U546	B-4
JD01	B-2	SD29	C-2	U547	B-3
JH01	E-8	SD32	E-7	U548	C-4
JV01	E-1	SD33	E-5	U549	C-3
JV02	E-3	U501	C-8	U550	C-4
QD01	C-5	U502	C-9	U551	C-4
RD05	E-7	U503	C-9	U552	C-4
RD06	E-7	U504	C-8	U553	C-3
RD07	E-7	U505	C-8	U554	D-4
RD08	E-7	U506	C-8	U555	D-3
RD09	E-4	U507	C-8	U556	D-4
RD10	E-4	U508	C-8	U557	D-4
RD11	E-4	U509	C-8	U557	D-6
RD12	E-4	U510	C-8	U558	D-3
RD13	E-5	U511	C-8	U559	D-3
RD17	E-6	U512	C-8	U560	C-3
RD18	E-6	U513	C-8	U561	C-3
RD31	D-2	U514	C-7	U562	D-3
RD32	C-1	U515	C-7	U563	D-3
RD33	D-3	U516	C-7	U564	D-2
RD34	D-1	U517	C-7	U565	C-2
RD35	D-3	U518	B-7	U566	C-2
RD36	B-1	U519	B-6	U567	C-2
RD37	D-1	U520	D-9	U568	C-2
RD38	D-2	U521	D-8	U569	C-2
RH01	E-8	U522	E-8	U570	D-2
RV01	E-2	U523	D-8	U571	D-1
RV02	E-4	U524	D-8	U572	D-1
RV03	E-4	U526	D-7	U573	D-2
SD01	D-5	U527	D-7	U574	D-1
SD03	D-3	U528	D-6	U574	D-2
SD04	D-1	U529	D-6	U575	D-1
SD05	C-3	U530	D-6	U576	E-8
SD06	C-1	U531	D-6	U578	E-8
SD08	D-2	U532	D-6	U590	E-8
SD09	D-2	U533	D-6	VD01	B-9
SD15	D-2	U534	D-6	WD02	D-9
SD16	D-3	U535	D-6	XD01	D-5


PD04-2/2 IR SENSOR PCB
PD03-1/3 FRONT PCB
VD01 FL
QD01 µPD75238
TIMER
PLAY
OFF
REC
SD31
RD01 4K7
RD02 2K2
RD03 1K
RD04 10K
JD91-2/3
WD02-2/3
DOLBY
B
C
SD32
RD05 4K7
RD06 2K2
RD07 1K
RD08 10K
INPUT SELECTOR
ANA
COAX
OPT
SD33
RD09 6K8
RD10 4K7
RD11 2K2
RD12 1K
RD13 10K
CD02 0.1µ
CD01 10µ 16V
RD17 3K3
RD18 10K
A/D CONVERTER
PROGRAM COUNTER (15)
ALU
CY
SP(8)
SBS(2)
BANK
GENERAL REG.
ROM PROGRAM MEMORY
DECODE AND CONTROL
RAM DATA MEMORY
BIT SEQ. BUFFER(16)
FIP CONTROLLER DRIVER
SERIAL BUS INTERFACE 1/2
SERIAL BUS INTERFACE 2/2
PORT0
PORT1
PORT2 1/2
PORT2 2/2
PORT3
PORT4
PORT5
PORT6
PORT7
FROM JD01
TO JD01
FROM JU01-23 FR
GD01
GD02
GD03
GD04
-30V
CLOCK DIVIDER
CLOCK GENERATOR
MAIN
SUB
STAND BY CONTROL
CPU CLOCK
XD01 4.19MHz
OF PG03
FROM JU02
MAIN PCB
TO QD01
METER L
METER R
TRAY SW
RESET
SCK
SI
REMOTE IN
RC-5/EASYL INK SELECT
START
REDY
ACK
GND
5.0V
+5V
FR
-31.2V
TO VD01 52,53,54
TO VD01 1,2,3
KEY0
KEY1
KEY2
KEY3
KEY4
KEY5
KEY6
KEY7
RD31 10K
RD32 10K
RD33 10K
RD34 10K
RD35 10K
RD36 10K
RD37 10K
RD38 10K
PLAY
REC
TRACK
TIME/COUNTER
DOLBY
CONT
CD SYNC
REPEAT
TRACK
ABS
REM
TOTAL
MIN
REPEAT SD01
APPEND SD09
TRAY OPEN/CLOSE SD17
BACKWARD SD03
COUNTER RESET SD19
FORWARD SD04
TEXT SD20
MONITOR SD25
PREVIOUS SD05
TIME SD21
AMS SD26
NEXT SD06
REC SYNC ON/OFF SD22
BLANK SKIP SD27
(REC) PAUSE SD15
START MRK AUTO/MANU SD23
REV PLAY SD28
STOP/CM SD08
REC SD16
REC MUTE SD24
FWD PLAY SD29



CD01	B-6	SD06	J-14
CD02	B-5	SD08	K-14
CD03	I-19	SD09	G-15
CV01	E-4	SD10	H-18
CV02	E-3	SD11	H-18
DD01	K-18	SD12	I-18
DD04	F-14	SD13	I-18
DD05	D-7	SD14	J-18
DD05	F-15	SD15	J-15
DD06	E-6	SD16	K-15
DD06	F-16	SD17	D-9
DD07	D-4	SD17	G-16
DD07	F-17	SD19	D-7
GD01	G-13	SD19	H-16
GD02	E-13	SD20	D-6
GD03	B-13	SD20	I-16
GD04	D-13	SD21	D-7
JD01	E-2	SD21	I-16
JD01	E-21	SD22	E-6
JD91-2/3	A-4	SD22	J-16
JD91-1/3	G-19	SD23	E-6
JD91-3/3	G-18	SD23	J-16
JH01	E-8	SD24	K-16
JV01	E-1	SD25	D-8
JV02	E-3	SD25	I-17
QD01	A-7	SD26	D-4
QD02	H-20	SD26	I-17
RD01	A-2	SD27	D-5
RD02	A-3	SD27	J-17
RD03	A-4	SD28	J-17
RD04	B-4	SD29	K-17
RD05	C-2	SD31	A-2
RD05	E-7	SD32	C-2
RD06	C-3	SD32	E-7
RD06	E-7	SD33	D-2
RD07	C-4	SD33	E-5
RD07	E-7	U520	D-9
RD08	C-4	U521	D-8
RD08	E-7	U522	E-8
RD09	E-4	U523	D-8
RD10	D-3	U524	D-8
RD10	E-4	U526	D-7
RD11	D-4	U527	D-7
RD11	E-4	U528	D-6
RD12	D-4	U529	D-6
RD12	E-4	U530	D-6
RD13	D-4	U531	D-6
RD13	E-5	U532	D-6
RD17	B-5	U533	D-6
RD17	E-6	U534	D-6
RD18	C-5	U535	D-6
RD18	E-6	U536	D-5
RD19	K-19	U537	E-6
RD26	H-20	U538	E-6
RD31	F-5	U539	E-6
RD32	F-5	U540	E-5
RD33	G-5	U541	E-5
RD34	G-5	U542	D-5
RD35	G-5	U554	D-4
RD36	G-5	U556	D-4
RD37	G-5	U557	D-4
RD38	H-5	U557	D-6
RD90	S-2	U576	E-8
RH01	E-8	U578	E-8
RV01	E-2	U590	E-8
RV02	E-4	VD01	A-13
RV03	E-4	WD02	D-9
SD01	D-5	WD02-2/3	A-4
SD01	G-14	WD02-1/3	F-20
SD03	H-14	WD02-3/3	G-18
SD04	I-14	XD01	D-5
SD05	I-14	XD01	J-6

HEAD, DECK MECHANISM AND THEIR INTERFACES

DCC head

Heads used in the DCC are called a thin film head and made by repeating 20 times or more of multiple evaporations and spatterings as in fabricating ICs.

Accordingly, the heads have different features and characteristics from those of coil winding type heads used in conventional Analog cassette tape decks.

1. Playback head uses a magnetic resistance element (MR element).
2. The MRE needs magnetic bias to obtain its maximum output. So, a bias conductor which is equivalent to a coil to develop the magnetic bias is installed.
3. Moreover, analog playback head needs a magnetic feedback to increase linearity. This is realized by giving a magnetic field proportional to the MRE output from a bias conductor.

Terminals and structure of the DCC head are shown in the Fig. 1.

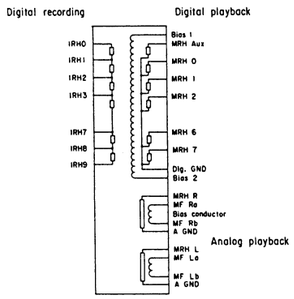


Fig. 1 DCC HEAD TERMINAL LIST AND THE STRUCTURE

Cautions of handling of heads

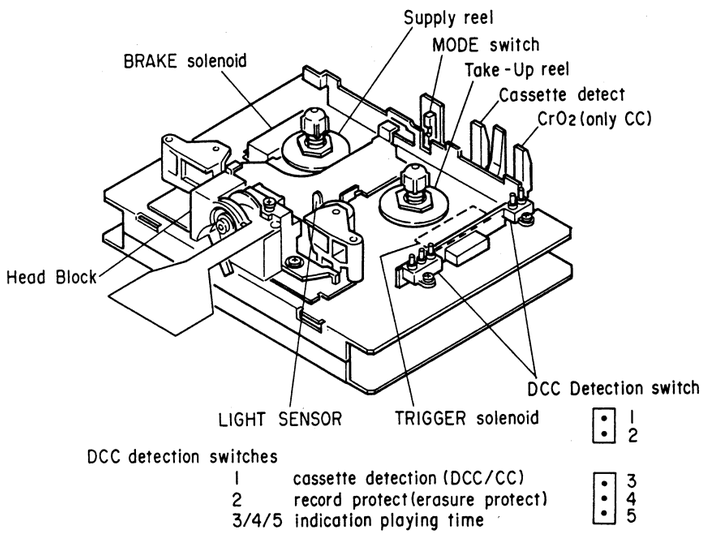
The heads are susceptible to electrostatic voltage (about DC150V).
The heads are protected from external electrostatic charging by connecting the head flexible cables to the Read/Write PCB.
When disconnecting the cables, always place the deck on a bench with required electrostatic discharging measures taken and wear an electrostatic discharging band.
Moreover, always mount the short-clip on the flexible cables removed.

The heads are also susceptible to strong external magnetic field and the analog output may be affected. Do not use a head demagnetizer, etc.

WARNING

DO NOT USE A DEMAGNETIZER CASSETTE.

AUTOREVERSE CASSETTE DECK



Pairing with Read/Write PCB

For each head,

- setting for amount of bias (for both analog and digital)
- feedback adjustment (only for analog playback)

are required.

That is, a pairing is needed for heads and R/W PCB to which the heads are connected. So, when the R/W PCB is replaced or the head is replaced, potmeters (trimming resistors) on the R/R/ PCB must be readjusted.

The adjustment requires dedicated adjustment jigs.

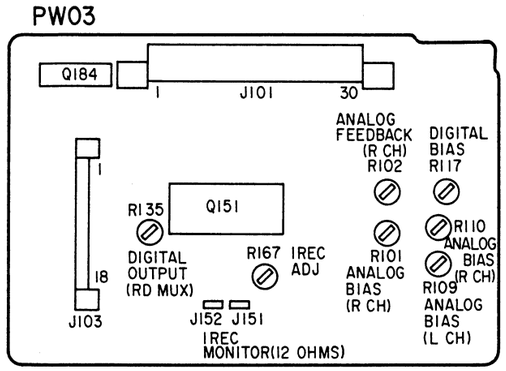


Fig. 2

Read/Write PCB adjustment

As previously stated, a pairing adjustment has been made for specified heads and the R/W PCB in the factory in preceding the shipment. So, following adjustments are not necessary in service stations PCB a first time.
(Perform replacement of deck, heads, R/W PCB and tray loader as one unit.)

Adjustment with dedicated jigs in the factory

1. Analog playback head bias adjustment (R109:Lch, R110:Rch)
2. Analog playback head feedback adjustment (R101:Lch, R102:Rch)
3. Digital playback head bias adjustment (R117)
4. Digital playback head playback output level adjustment (R135)
5. Digital record head record current adjustment (R167)

1. and 2. determine distortion value in the analog playback.

2. determines frequency response in the same way. Accordingly, tampering the trimming resistors for 1. and 2. will deteriorate those characteristics. These operations can be monitored at Ana L and R terminals on the R/W/ PCB.

3. will be replaced with a fixed resistor in near future. Since the digital output has only two values 1 or 0, minor waveform distortion can be accepted.

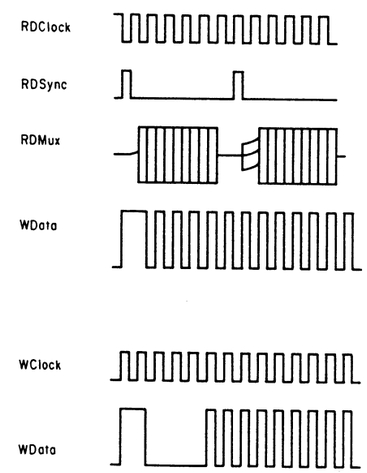
4. is the adjustment for an attenuator to develop a specified voltage for sending a signal to the signal process circuit (DCC PCB). This can be used to test a correct output is obtained from the head. This operation can be monitored at RMUX terminal on the R/W PCB.

5. is required to record signals in a constant depth on a tape.
For each head, a recommended record current exists individually. (140 ~ 180mA) If this value is not adjusted correctly, the RD MUX value in 4 does not match between a self recorded tape and prerecorded tape.
Moreover, if a recording is made at a deep layer with a high value, the previous records can not be erased when an overwrite recording is made at that area later, and error rate will be increased at that area.

Check points for R/W PCB

Under normal operations, the following signals can be observed out of R/W PCB connectors.

at PLAYBACK



at RECORDING

Fig. 3

The actual waveforms are shown photo 1 to 2.

Pairing with Read/Write PCB

For each head,

- setting for amount of bias (for both analog and digital)
- feedback adjustment (only for analog playback)

are required.

That is, a pairing is needed for heads and R/W PCB to which the heads are connected. So, when the R/W PCB is replaced or the head is replaced, potmeters (trimming resistors) on the R/R/ PCB must be readjusted.

The adjustment requires dedicated adjustment jigs.

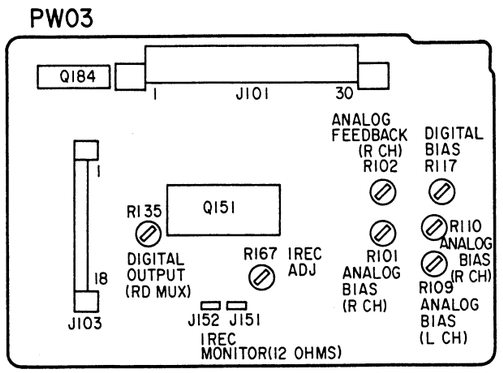


Fig. 2

Read/Write PCB adjustment

As previously stated, a pairing adjustment has been made for specified heads and the R/W PCB in the factory in preceding the shipment. So, following adjustments are not necessary in service stations PCB a first time.
(Perform replacement of deck, heads, R/W PCB and tray loader as one unit.)

Adjustment with dedicated jigs in the factory

1. Analog playback head bias adjustment (R109:Lch, R110:Rch)
2. Analog playback head feedback adjustment (R101:Lch, R102:Rch)
3. Digital playback head bias adjustment (R117)
4. Digital playback head playback output level adjustment (R135)
5. Digital record head record current adjustment (R167)

1. and 2. determine distortion value in the analog playback.

2. determines frequency response in the same way. Accordingly, tampering the trimming resistors for 1. and 2. will deteriorate those characteristics. These operations can be monitored at Ana L and R terminals on the R/W/ PCB.

3. will be replaced with a fixed resistor in near future. Since the digital output has only two values 1 or 0, minor waveform distortion can be accepted.

4. is the adjustment for an attenuator to develop a specified voltage for sending a signal to the signal process circuit (DCC PCB). This can be used to test a correct output is obtained from the head. This operation can be monitored at RMUX terminal on the R/W PCB.

5. is required to record signals in a constant depth on a tape.
For each head, a recommended record current exists individually. (140 ~ 180mA) If this value is not adjusted correctly, the RD MUX value in 4 does not match between a self recorded tape and prerecorded tape.
Moreover, if a recording is made at a deep layer with a high value, the previous records can not be erased when an overwrite recording is made at that area later, and error rate will be increased at that area.

Check points for R/W PCB

Under normal operations, the following signals can be observed out of R/W PCB connectors.

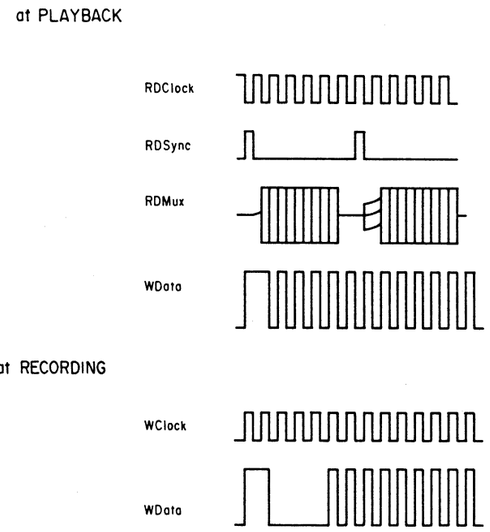
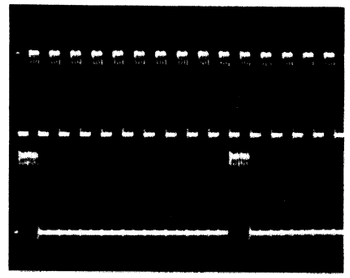


Fig. 3

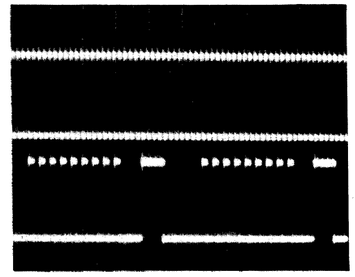
The actual waveforms are shown photo 1 to 2.

At PLAYBACK **Photo 1**

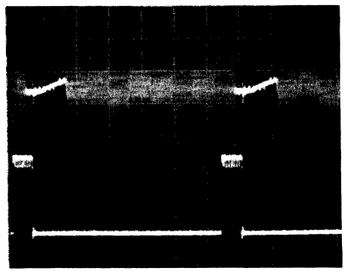


Up: Rdclock
Dn: Rdsync
X : 0.5μS/div
Y : 0.2V/div

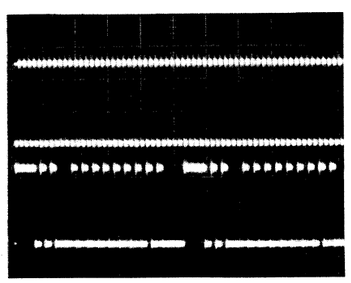
At RECORDING **Photo 2**



Up: Wdclock
Dn: Wdata
X : 2μS/div
Y : 0.2V/div

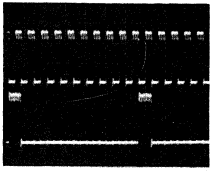


Up: Rdclock
Dn: Rdsync
X : 0.5μS/div
Y : 50mV/div(Up)
Y : 0.2V/div(Dn)



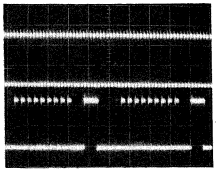
Up: Wclock
Dn: Wdata
X : 2μS/div
Y : 0.2V/div

At PLAYBACK **Photo 1**

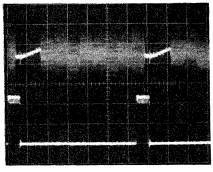


Up: Rdclock
Dn: Rdsync
X : 0.5μS/div
Y : 0.2V/div

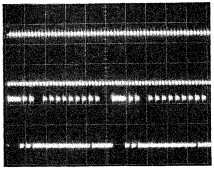
At RECORDING **Photo 2**



Up: Wdclock
Dn: Wdata
X : 2μS/div
Y : 0.2V/div



Up: Rdclock
Dn: Rdsync
X : 0.5μS/div
Y : 50mV/div(Up)
Y : 0.2V/div(Dn)



Up: Wclock
Dn: Wdata
X : 2μS/div
Y : 0.2V/div

DCC capstan servo

Record:

DDSP IC on the DCC PCB continuously outputs a rectangular waveform of 24kHz, 50% duty. This can be monitored at check point on the PCB, #3 of J411. With this rectangular waveform the capstan motor rotates at a specified speed to record signals on a tape.

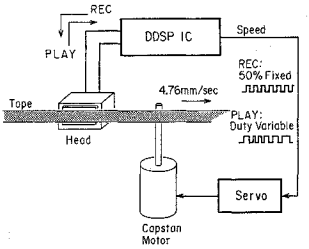
DCC playback:

Digital signal from the head is read, and speed deviation is calculated and output as a variation of duty at the speed terminal. The servo circuit on the tray PCB cycle changes the output into a drive force for the capstan motor, thereby performing the control.

Since the capstan motor is of electronic governor type, it has four terminals, +, –, A, and B.

Analog playback:

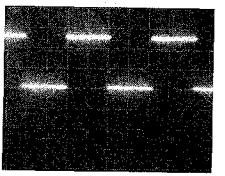
Continuously develops a fixed rectangular waveform signal of 24kHz, 50% duty as in the record mode.



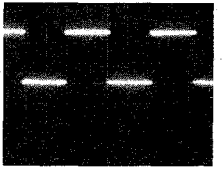
DCC capstan servo system

The actual waveforms are shown photo 3.

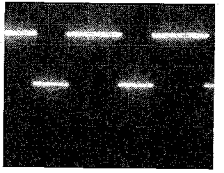
SPEED SIGNAL **Photo 3**



At RECORDING
X : 10µS/div
Y : 0.2V/div



At normal PLAYBACK
X : 10µS/div
Y : 0.2V/div



At PLAYBACK with OFFSET
X : 10µS/div
Y : 0.2V/div

ELECTRICAL MEASUREMENTS AND ADJUSTMENTS

Tape speed adjustment (PM03 PCB)

1. Connect frequency counter to analog L- or R-output.
2. Playback on side A 3.15kHz(3kHz) signal from wow & flutter test cassette.
3. Adjust RS02 for frequency reading between 3145Hz(2990Hz) and 3155Hz(3010Hz).
4. Play back 3.15kHz(3kHz) at side B.
5. Adjust RS08 for reading between 3145Hz(2990Hz) and 3155Hz(3010Hz).

NOTE:

If the adjustment of the unit is not made precisely and rotation error higher than a specified value occurs, the servo is not locked during playback of a DCC tape and the signals will be muted. This condition (locked or not locked) can be monitored at speed terminal (#3) of JW06. (Refer to photo.) Under normal locked condition, deflection of the speed signal is less than 0.5mS.

Quick sensor adjustment (PM03 PCB)

1. Connect DC-voltmeter between 3-J031 and ground.
2. Use CC Maxwell UDI90.
   (Bad tape with respect to light reflection)
3. Wind tape until leader is passed.
4. Press PLAY.
5. Adjust R036 for DC reading of 1V.
   If don't get 1V at the maximum adjustment, leave the maximum point.

Analog playback frequency response adjustment (PG03 PCB)

1. Play back 40Hz, 1kHz, 14kHz signals on test tape TCC 183C (–24dB).
2. Adjust each trimming resistor R645(L) and R646(R) so that 40Hz signal level shows within 0 ~ 1dB from 1kHz reference level.
3. Adjust each trimming resistor R643(L) and R644(R) so that 14kHz signal level shows within 0 ~ 1dB from 1kHz reference level.

Playback output adjustment (Dolby) (PG03 PCB)

1. Connect AC-voltmeter between 1-J601 and 2-J601 for R-channel and 3-J601 and 2-J601 for L-channel.
2. Playback Dolby test cassette.
3. Adjust R633 (L) and R634 (R) for AC reading of 389 mV.

Level meter sensitivity adjustment (PG03 PCB)

1. Connect a 1kHz (–12dB) digital signal (44.1kHz) to the digital terminal.
2. Set unit to REC PAUSE mode.
3. Adjust each trimming resistor RL05(L), and RL06(R) until meter lights up–10dB point then lights down–12dB point.
4. After the above adjustment, playback the Dolby Test Tape, check the meter lights on 0dB point.

NOTE:

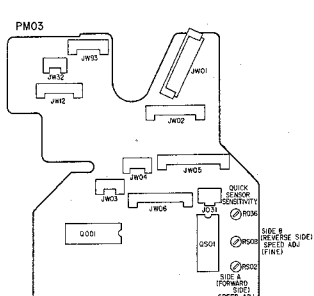
If the meter lights on except 0dB point, adjust again from the first step.

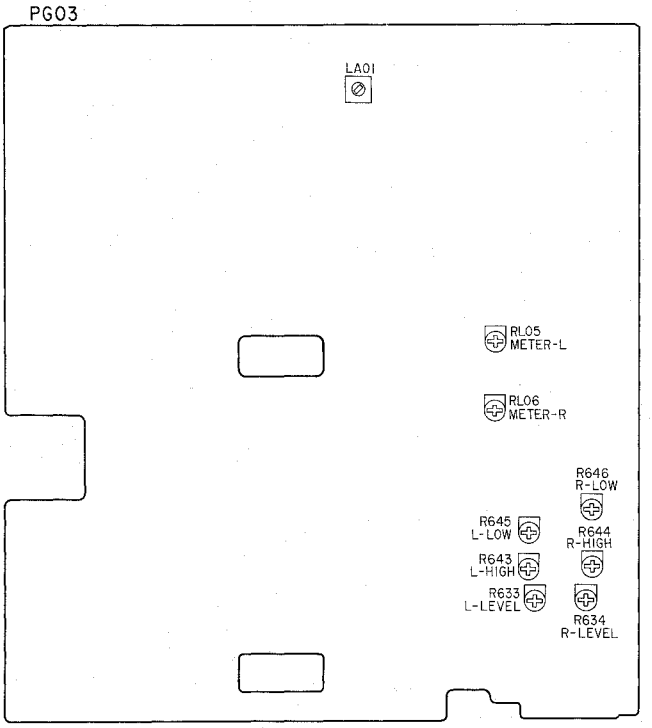
VCO free run frequency adjustment (PZ03 PCB)

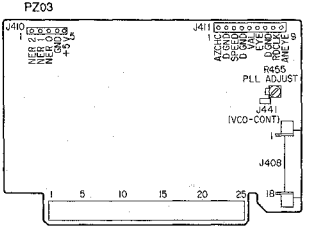
1. Turn the power switch ON. (Don't input any digital signal.)
2. Make sure the frequency on the test point J442, and adjust the trimming resistor R455 to 7.5MHz ± 0.1MHz.

NOTE:

If this adjustment is not performed properly, the sync signal is not locked with an outside one.
This frequency must be checked carefully when replacing the IC Q441, Q443 and Q444.



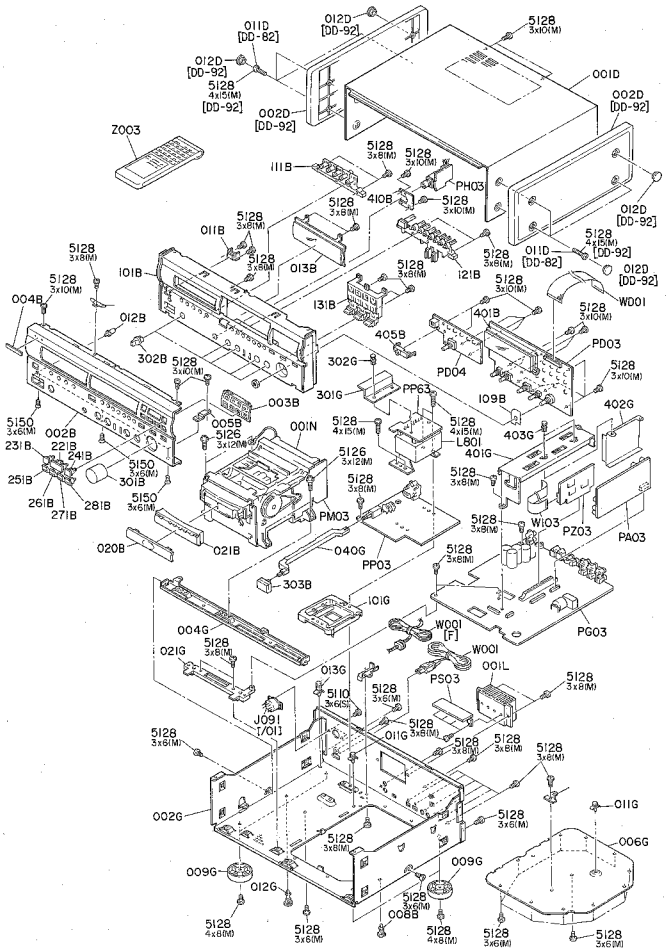

PG03
LA01
RL05
METER-L
RL06
METER-R
R646
R-LOW
R645
L-LOW
R644
R-HIGH
R643
L-HIGH
R633
L-LEVEL
R634
R-LEVEL

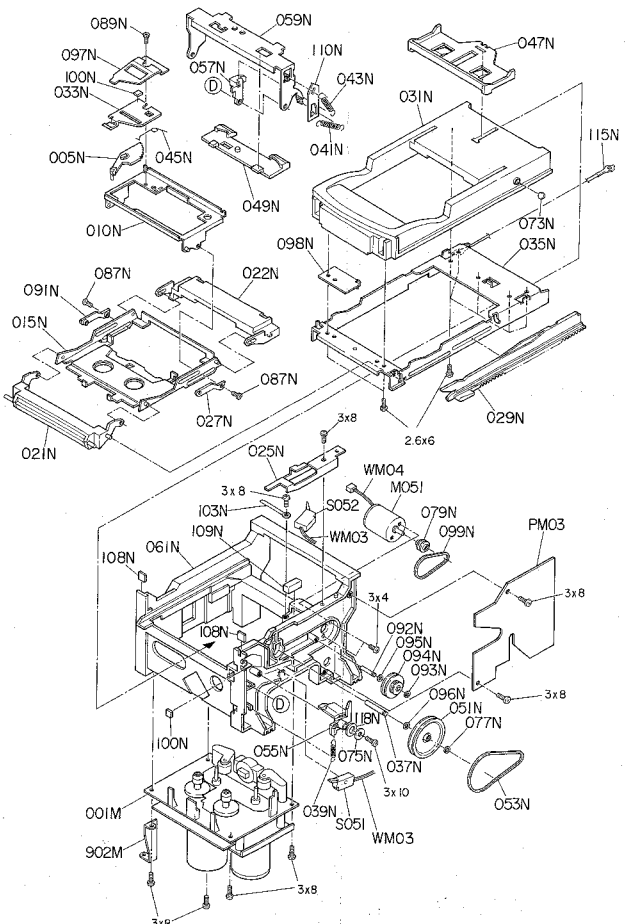

PZ03
J410
J411
R455
PLL ADJUST
J441
(VCO-CONT)
J408
1
5
10
15
20
25
18

SET EXPLODED VIEW AND PARTS LIST

REF. DESIG.	PART NO.	DESCRIPTION
002B	4822 443 41205	FRONT PANEL AL(GL) (DD-92)
	4822 443 41206	FRONT PANEL AL(BL) (DD-82)
003B		BUSHING FOR MECHA BUTTON (DD-92)
		BUSHING FOR MECHA BUTTON (DD-82)
004B	4822 459 10972	BADGE FOR MARANTZ(GOLD) (DD-92)
	4822 459 10943	BADGE FOR MARANTZ(GOLD) (DD-82)
005B	4822 403 70836	BRACKET FOR FRONT PANEL
011B	4822 381 11381	LENS FOR IR-SENSER
012B	4822 381 11382	LENS FOR STANDBY
013B	4822 450 62012	WINDOW FOR FL DISPLAY
020B	4822 454 21082	ESCUTCHEON FOR TLAY DOOR (DD-92)
	4822 454 21083	ESCUTCHEON FOR TLAY DOOR (DD-82)
021B	4822 502 21295	ADJUSTER FOR TRAY + ESC. (DD-92)
	4822 502 21296	ADJUSTER FOR TRAY + ESC. (DD-82)
101B	4822 464 50953	FRONT CHASSIS (DD-92)
	4822 464 50954	FRONT CHASSIS (DD-82)
111B	4822 410 62432	BUTTON ASSY. FOR SUB CODE (DD-92)
	4822 410 62434	BUTTON ASSY. FOR SUB CODE (DD-82)
121B	4822 410 62433	MODE BUTTON ASSY. (DD-92)
	4822 410 62435	MODE BUTTON ASSY. (DD-82)
131B	4822 403 70834	MOVEMENT ASSY. MECHA BUTTON (DD-92)
	4822 403 70835	MOVEMENT ASSY. MECHA BUTTON (DD-82)
221B	4822 462 71899	CAP ASSY. (PLAY BUTTON)(DD-92)
	4822 462 71907	CAP ASSY. (PLAY BUTTON)(DD-82)
231B	4822 462 71901	CAP ASSY. (PREVIOUS BUTTON) (DD-92)
	4822 462 71908	CAP ASSY. (PREVIOUS BUTTON) (DD-82)
241B	4822 462 71902	CAP ASSY. (NEXT BUTTON)(DD-92)
	4822 462 71909	CAP ASSY. (NEXT BUTTON)(DD-82)
251B	4822 462 71905	CAP ASSY. (REWIND BUTTON)(DD-92)
	4822 462 71913	CAP ASSY. (REWIND BUTTON)(DD-82)
261B	4822 462 71903	CAP ASSY. (STOP BUTTON)(DD-92)
	4822 462 71911	CAP ASSY. (STOP BUTTON)(DD-82)
271B	4822 462 71904	CAP ASSY. (PAUSE BUTTON)(DD-92)
	4822 462 71912	CAP ASSY. (PAUSE BUTTON)(DD-82)
281B	4822 462 71906	CAP ASSY. (WIND BUTTON)(DD-92)
	4822 462 71914	CAP ASSY. (WIND BUTTON)(DD-82)
301B	4822 413 41641	KNOB FOR REC VR. (DD-92)
	4822 413 31572	KNOB FOR REC VR. (DD-82)
302B	4822 413 41642	KNOB FOR BL/SEL/LEV/TIM/DOLBY (DD-92)
	4822 413 31573	KNOB FOR BL/SEL/LEV/TIM/DOLBY (DD-82)
303B	4822 410 60358	BUTTON FOR POWER SW. (DD-92)
	4822 410 60194	BUTTON FOR POWER SW. (DD-82)
401B	4822 256 92006	HOLDER FOR FL DISPLAY
402B	4822 454 12431	STICKER
405B	4822 255 41281	HOLDER FOR SANDBY LED
002D	4822 447 50121	SIDE DIECAST PANEL (DD-92)
011D	4822 502 12511	B.T. SCREW (W/W) (DD-82) [/01]
	4822 501 11008	B.T. SCREW (W/W) (DD-82) [/02/05/07]
012D	4822 444 60607	CAP FOR SIDE PANEL SCREW(DD-92)
009G	4822 462 41993	LEG
025G	4822 502 12512	B.T.SCREW (W/W)
040G	4822 403 70833	LINK FOR POWER BUTTON

REF. DESIG.	PART NO.	DESCRIPTION
		PACKING
001T	4822 736 21627	USER MANUAL (DD-92)
	4822 736 21628	USER MANUAL (DD-82)
Z001	4822 321 22611	RCA CONNECTIVE CORD (GOLD)
Z003	4822 218 30667	REMOTE COMMNDER (DD-92)
	4822 218 30668	REMOTE COMMNDER (DD-82)
Z004	4822 138 10292	BATTERY
Z005	4822 267 31133	JACK, AC ADAPTER [/01]
⚠W001	4822 321 10932	A.C.POWER CORD 2.5A 250V [/01/02]
	4822 321 10915	A.C.POWER CORD 2.5A 250V [/05]
	4822 321 10934	A.C.POWER CORD 2.5A 250V [/07]
001N	4822 691 20815	TRAY MECHANISM ASSY(GL) (DD-92)
	4822 443 63788	TRAY MECHANISM ASSY(BL) (DD-82)
005N	4822 403 70784	ARM KIT
021N	4822 403 70781	ARM
022N	4822 403 70782	ARM
025N	4822 403 70837	GUIDE
027N	4822 401 11486	CLAMPER
029N	4822 522 33306	GEAR
031N	4822 443 63817	CASE (GL) (DD-92)
	4822 443 63789	CASE (BL) (DD-82)
033N	4822 403 70785	RETAINER
039N	4822 492 33359	SPRING
041N	4822 492 33361	SPRING
043N	4822 492 33362	SPRING
045N	4822 492 33363	SPRING
047N	4822 443 63791	MOVEMENT
049N	4822 403 70787	PAD
051N	4822 528 40349	PULLEY
053N	4822 358 31232	BELT
055N	4822 403 70788	LEVER
057N	4822 403 70789	LEVER
061N	4822 464 50941	FRAME
073N	4822 520 40293	BALL
075N	4822 532 21196	FLAT WASHER, L
077N	4822 462 71886	STOPPER WASHER
079N	4822 528 40352	PULLEY
087N	4822 502 12245	P.H.M. SCREW
089N	4822 502 12526	P.H.M. SCREW
091N	4822 401 11485	CLAMPER
093N	4822 462 71886	STOPPER WASHER
094N	4822 528 40351	PULLEY
095N	4822 532 12233	WASHER
096N	4822 532 12233	WASHER
097N	4822 492 71237	LEAF SPRING FOR SLIDER OPEN
098N	4822 492 71236	LEAF SPRING FOR ESD
099N	4822 358 31233	BELT
110N	4822 466 62293	PROTECTOR, CASSETTE CLAMPER SPRING
118N	4822 532 12205	WASHER FOR LEVER
001M	4822 691 20777	MECHANISM ASSY
M051	4822 361 60467	D.C.MOTOR, 8V TRAY
S051	4822 277 21132	SLIDE SWITCH, CLOSE
S052	4822 277 21132	SLIDE SWITCH, OPEN


Z003
001D
002D [DD-92]
011D [DD-82]
012D [DD-92]
5128 3x10(M)
5128 4x15(M) [DD-92]
111B
PH03
410B
011B
013B
121B
131B
101B
004B
012B
302B
003B
002B
005B
001N
231B
221B
241B
251B
261B
271B
281B
301B
5150 3x6(M)
5126 3x12(M)
PM03
020B
021B
040G
303B
PP03
101G
004G
021G
013G
011G
002G
009G
012G
0088
006G
W001 [F]
W001
001L
P503
5110 3x6(S)
J091
T011
401B
405B
302G
301G
PP63
PD04
PD03
WD01
109B
L801
401G
403G
402G
W103
PZ03
PA03
PG03


089N
097N
100N
033N
059N
057N
110N
043N
047N
031N
115N
005N
045N
041N
049N
010N
073N
098N
035N
091N
087N
022N
015N
087N
027N
029N
021N
3x8
2.6x6
025N
WM04
M051
3x8
103N
S052
079N
109N
WM03
099N
PM03
108N
061N
3x4
3x8
092N
095N
094N
093N
108N
096N
3x8
051N
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100N
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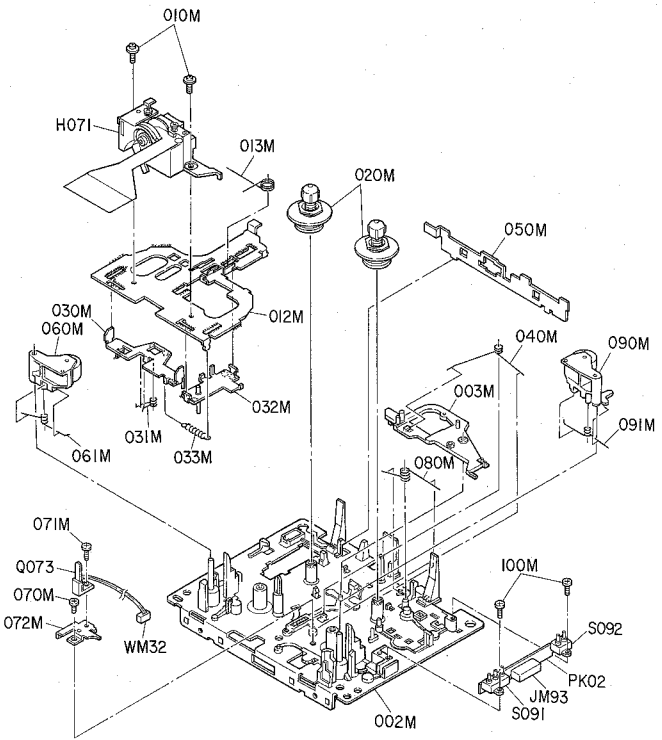
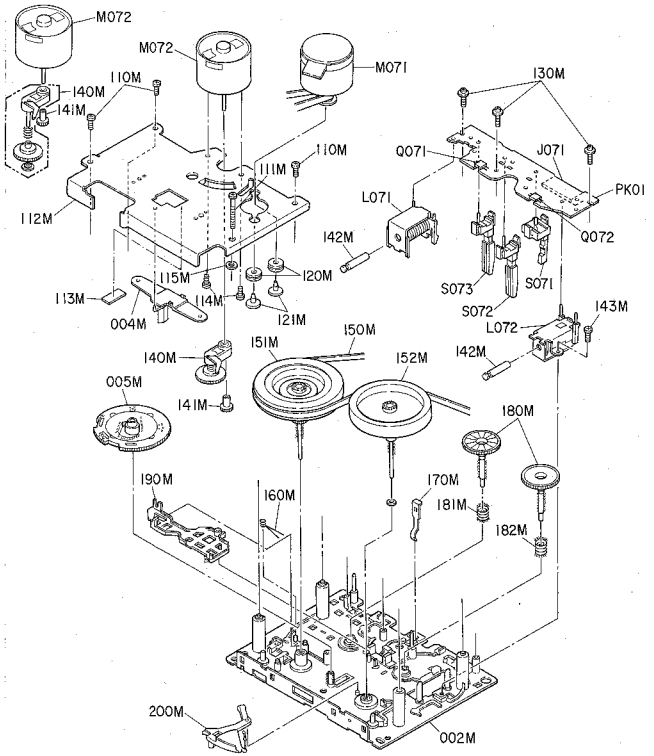
075N
037N
3x10
053N
001M
039N
S051
WM03
902M
3x8
3x8


010M
H071
013M
020M
050M
012M
030M
060M
040M
090M
003M
091M
032M
031M
033M
061M
080M
071M
Q073
070M
072M
WM32
100M
S092
PK02
JM93
S091
002M


M072
M072
M071
140M
110M
141M
130M
Q071
J071
110M
111M
112M
L071
PK01
142M
Q072
120M
115M
113M
114M
121M
S073
S071
S072
143M
004M
L072
140M
151M
150M
142M
152M
005M
141M
180M
190M
160M
170M
181M
182M
200M
002M

REF. DESIG.	PART NO.	DESCRIPTION
001M	4822 691 20777	MECHANISM ASSY
002M	4822 464 50942	MECHANISM BASE
003M	4822 403 70794	BRAKE LEVER
004M	4822 403 70796	SUSTAINER, THRUST RETAINER
005M	4822 522 33307	MAIN GEAR
010M	4822 502 21266	SCREW, HEAD ASSY
012M	4822 464 50965	HEAD CHASSIS
013M	4822 492 33364	SPRING, HEAD CHASSIS
020M	4822 528 10865	REEL, DAI
030M	4822 403 70839	REVERS LEVER
031M	4822 492 52341	SPRING, HEAD PRESS
033M	4822 492 33365	LEVER SPRING
040M	4822 492 33366	SPRING, BRAKE LEVER
060M	4822 528 81484	PINCHROLLEA ASSY(R)
061M	4822 492 71233	SPRING, FOR PINCHROLLEA(R)
070M	4822 502 21267	SPRING, FOR SENSOR RETAINOR
071M	4822 502 21268	SPRING, FOR END SENSOR
080M	4822 492 33367	SPRING, HEAD CHASSIS
090M	4822 528 81485	PINCH ROLLER ASSY(F)
091M	4822 492 71234	SPRING FOR PINCHROLLEA(F)
109M	4822 502 21269	SPRING, FOR DCC SENSOR SW
110M	4822 502 21271	SPRING, FOR MOTOR BASE
111M	4822 502 21272	SPRING, FOR MOTOR BASE
112M	4822 403 70838	MOTOR BRACKET
113M	4822 532 12232	SPACER
114M	4822 502 21273	SPRING, FOR REEL MOTOR
115M	4822 532 12206	WASHER
120M	4822 462 71885	BUFFER FOR DC MOTOR
121M	4822 502 21274	SCREW FOR DC MOTOR
130M	4822 502 21275	SCREW FOR SWITCH PCB
140M	4822 522 33308	IDOL GEAR
141M	4822 522 33309	REEL MOTOR GEAR
143M	4822 502 21265	SCREW FOR BRAKE SOLENOID
150M	4822 358 31234	CAPSTAN BELT
151M	4822 528 60402	FLY WHEEL(F)
152M	4822 528 60403	FLY WHEEL(R)
160M	4822 492 71235	SPRING
170M	4822 492 71302	LEAF SPRING
180M	4822 522 33311	GEAR
181M	4822 492 33368	SPRING
182M	4822 492 33369	SPRING
190M	4822 403 70791	LEVER
200M	4822 403 70792	LEVER
D071	4822 130 32778	DIODE TRIGER 1SS133TA
D072	4822 130 32778	DIODE TRIGER 1SS133TA
H071	4822 403 70793	HEAD ASSY (HEAD BLOCK)
H702	4822 249 10474	REC/PLAY DCC 20CH HEAD
L071	4822 281 50177	SOLENOID COIL, TRIGER
L072	4822 281 50176	SOLENOID COIL, BRAKE
M071	4822 361 21589	D.C.MOTOR, 12V MAIN (CAPSTAN)
M072	4822 361 21588	D.C.MOTOR, 8V REEL (FWD/REV)
Q071	4822 130 83233	PHOTO UNIT TAKE-UP GP2S06BC
Q072	4822 130 83233	PHOTO UNIT SUPPLY GP2S06BC
Q073	4822 130 83232	PHOTO UNIT QUICK SENSOR SP1-306-03
S071	4822 271 30789	MINI SWITCH MODE
S072	4822 271 30791	MINI SWITCH TAPE IN
S073	4822 271 30791	MINI SWITCH CrO2
S091	4822 276 13345	PUSH SWITCH LENGITH
S092	4822 176 13344	PUSH SWITCH DCC

REF. DESIG.	PART NO.	DESCRIPTION

ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTOR

R***: (1) GD06-***-140, Carbon film fixed resistor, ±5%, 1/4W
R***: (2) GD05-***-160, Carbon film fixed resistor, ±5%, 1/6W

① — Resistance value

Examples

① Resistance value

0.1Ω ... 001	10Ω ... 100	1kΩ ... 102	100kΩ ... 104
0.5Ω ... 005	18Ω ... 180	2.7kΩ ... 272	680kΩ ... 684
1Ω ... 010	100Ω ... 101	10kΩ ... 103	1MΩ ... 105
6.8Ω ... 068	390Ω ... 391	22kΩ ... 223	4.7MΩ ... 475

(Note) Please distinguish 1/4W from 1/6W by the shape of parts used actually.

C***: CERAMIC CAP.
(1) DD1-***-370, Ceramic condenser
Disc type
①② Temp. coeff. P350 — N1000, 50V
② Capacity value
① Tolerance

Examples

① Tolerance (Capacity deviation)
±0.25pF ... 0
±0.5pF ... 1
±5% ... 5

* Tolerance of COMMON PARTS handled here are as follows.
0.5pF ~ 5pF ... ±0.25pF
6pF ~ 10pF ... ±0.5pF
12pF ~ 560pF ... ±5pF

② Capacity value

0.5pF ... 005	3pF ... 030	100pF ... 101	
1pF ... 010	10pF ... 100	220pF ... 221	
1.5pF ... 015	47pF ... 470	560pF ... 561	

C***: CERAMIC CAP.
(1) DK16-***-300, High dielectric constant ceramic condenser
Disc type
① Temp. chara. 2B4, 50V
Capacity value

Examples

② Capacity value

100pF ... 101	1000pF ... 102	10000pF ... 103
470pF ... 471	2200pF ... 222	

C***: ELECTROLY CAP. (⫩), FILM CAP. (⫟)
(1) EA-***-***10, Electrolytic condenser
One-way lead type, Tolerance ±20%
①② Dielectric strength
Capacity value

Examples

① Capacity value

0.1μF ... 104	4.7μF ... 475	100μF ... 107	
0.33μF ... 334	10μF ... 106	330μF ... 337	
1μF ... 105	22μF ... 226	1100μF ... 108	
		2200μF ... 228	

② Working voltage

6.3V ... 006	25V ... 025	
10V ... 010	35V ... 035	
16V ... 016	50V ... 050	

(2) DF15-***-350, Plastic film condenser
One-way type, Mylar ±5% 50V
① Capacity value

Examples

① Capacity value

0.001μF (1000pF) ... 102	0.1μF ... 104
0.0018μF ... 182	0.56μF ... 564
0.01μF ... 103	1μF ... 105
0.015μF ... 153	

REF. DESIG.	PART NO.	DESCRIPTION
		PA03-AD/DA CIRCUIT BOARD
		PA03-CAPACITORS
C202	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C203	4822 124 22237	ELECT 10μF 16V
C204	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C205	4822 124 22237	ELECT 10μF 16V
C206	4822 124 22237	ELECT 10μF 16V
C207	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C208	4822 124 90352	ELECT 10μF 16V
C210	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C211	4822 124 22237	ELECT 10μF 16V
C212		
〃	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C214		
C215	4822 124 23511	ELECT 100μF 25V
C216	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C217	4822 124 23511	ELECT 100μF 25V
C218		
〃	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C220		
C221	4822 124 90389	ELECT 4.7μF 25V
C222	4822 124 90389	ELECT 4.7μF 25V
C225		
〃	4822 126 11728	ELECT 220μF 16V
C228		
C231	4822 124 90389	ELECT 4.7μF 25V
C232	4822 124 90389	ELECT 4.7μF 25V
C236	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C301	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C302	4822 124 41537	ELECT 220μF 6.3V
C305	4822 124 41539	ELECT 47μF 16V
C306	4822 124 41539	ELECT 47μF 16V
C309	4822 124 41537	ELECT 220μF 6.3V
C310	4822 124 41537	ELECT 220μF 6.3V
C329	4822 126 12523	CERAMIC 56PF ±5% CHIP
C330	4822 126 12523	CERAMIC 56PF ±5% CHIP
C333	5322 122 32336	FILM 560PF ±5% 50V
C334	5322 122 32336	FILM 560PF ±5% 50V
C335	4822 126 11728	ELECT 220μF 16V
C336	4822 126 11728	ELECT 220μF 16V
C343		
〃	4822 121 41857	FILM 0.01μF ±10%
C346		
C347	4822 124 90364	ELECT 220μF 16V
C348	4822 124 90364	ELECT 220μF 16V
C349	4822 126 11728	ELECT 220μF 16V
C350	4822 126 11728	ELECT 220μF 16V
C351	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C377	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C379	4822 124 41537	ELECT 220μF 6.3V
C380	4822 124 41537	ELECT 220μF 6.3V
C381		
〃	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C388		
C389	4822 124 41537	ELECT 220μF 6.3V
C390	4822 124 41537	ELECT 220μF 6.3V
C391	4822 126 12524	CERAMIC 820PF ±5% CHIP
C392	4822 126 12524	CERAMIC 820PF ±5% CHIP
C393		
〃	4822 122 32786	CERAMIC 220PF ±5% CHIP
C396		
C397	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
C398	4822 126 11687	CERAMIC 0.1μF +80% -20% CHIP
		PA03-RESITORS
R201	4822 117 10148	51Ω ±1% 1/10W, CHIP
R204	4822 051 30103	10KΩ ±5% 1/16W, CHIP
R205	4822 117 10148	51Ω ±1% 1/10W, CHIP
R206	4822 117 10149	120Ω ±5% 1/2W, CHIP

REF. DESIG.	PART NO.	DESCRIPTION
R207	4822 117 10149	120Ω ± 5% 1/2W, CHIP
⚠R208	4822 111 90967	4.7Ω ± 5% 1/4W, FUSE
R221	4822 051 30104	100KΩ ± 5% 1/16W, CHIP
R222	4822 051 30104	100KΩ ± 5% 1/16W, CHIP
R223	4822 117 10148	51Ω ± 1% 1/10W, CHIP
R224	4822 117 10148	51Ω ± 1% 1/10W, CHIP
R225		
〃	4822 117 10149	120Ω ± 5% 1/2W, CHIP
R228		
R229	4822 051 30223	22KΩ ± 5% 1/16W, CHIP
R230	4822 051 30223	22KΩ ± 5% 1/16W, CHIP
R231	4822 051 30222	2.2KΩ ± 5% 1/16W, CHIP
R232	4822 051 30222	2.2KΩ ± 5% 1/16W, CHIP
R233	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R234	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R235	4822 116 83211	1.8KΩ ± 5% 1/16W, CHIP
R236	4822 116 83211	1.8KΩ ± 5% 1/16W, CHIP
R237	4822 051 30473	47KΩ ± 5% 1/16W, CHIP
R238	4822 051 30473	47KΩ ± 5% 1/16W, CHIP
⚠R301	4822 111 90967	4.7Ω ± 5% 1/4W, FUSE
R302	4822 051 30105	1MΩ ± 5% 1/16W, CHIP
⚠R304	4822 111 90967	4.7Ω ± 5% 1/4W, FUSE
⚠R305	4822 111 90967	4.7Ω ± 5% 1/4W, FUSE
R306		
〃	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R308		
R309	4822 051 30222	2.2KΩ ± 5% 1/16W, CHIP
R311	4822 111 90883	10KΩ ± 1% 1/10W, CHIP
R312	4822 111 90883	10KΩ ± 1% 1/10W, CHIP
R313		
〃	4822 116 83255	3.3KΩ ± 1% 1/10W, CHIP
R316		
R317	4822 111 90883	10KΩ ± 1% 1/10W, CHIP
R318	4822 111 90883	10KΩ ± 1% 1/10W, CHIP
R319	4822 117 10183	2.6KΩ ± 1% 1/10W, CHIP
R320	4822 117 10183	2.6KΩ ± 1% 1/10W, CHIP
⚠R321	4822 111 90967	4.7Ω ± 5% 1/4W, FUSE
⚠R322	4822 111 90967	4.7Ω ± 5% 1/4W, FUSE
R323	4822 117 10183	2.6KΩ ± 1% 1/10W, CHIP
R324	4822 117 10183	2.6KΩ ± 1% 1/10W, CHIP
R325	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R326	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R327	4822 051 30682	6.8KΩ ± 5% 1/16W, CHIP
R328	4822 051 30682	6.8KΩ ± 5% 1/16W, CHIP
R329	4822 051 30222	2.2KΩ ± 5% 1/16W, CHIP
R330	4822 051 30222	2.2KΩ ± 5% 1/16W, CHIP
R331	4822 051 30101	100Ω ± 5% 1/16W, CHIP
R332	4822 051 30101	100Ω ± 5% 1/16W, CHIP
R333	4822 051 30471	470Ω ± 5% 1/16W, CHIP
R334	4822 051 30471	470Ω ± 5% 1/16W, CHIP
R335	4822 117 10154	10MΩ ± 5% 1/16W, CHIP
R336	4822 117 10154	10MΩ ± 5% 1/16W, CHIP
⚠R337		
〃	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠R340		
R341	4822 051 30101	100Ω ± 5% 1/16W, CHIP
R342	4822 051 30101	100Ω ± 5% 1/16W, CHIP
R343	4822 051 30682	6.8KΩ ± 5% 1/16W, CHIP
R344	4822 051 30682	6.8KΩ ± 5% 1/16W, CHIP
R345	4822 051 30101	100Ω ± 5% 1/16W, CHIP
R346	4822 051 30101	100Ω ± 5% 1/16W, CHIP
R347	4822 051 30223	22KΩ ± 5% 1/16W, CHIP
R348	4822 051 30223	22KΩ ± 5% 1/16W, CHIP
R349	4822 051 30473	47KΩ ± 5% 1/16W, CHIP
R350	4822 051 30153	15KΩ ± 5% 1/16W, CHIP
R351	4822 051 30104	100KΩ ± 5% 1/16W, CHIP
R357	4822 116 82487	0Ω ± 5% 1/16W, CHIP
R359	4822 116 82487	0Ω ± 5% 1/16W, CHIP
R360	4822 116 82487	0Ω ± 5% 1/16W, CHIP

REF. DESIG.	PART NO.	DESCRIPTION
R363	4822 051 30223	22KΩ ± 5% 1/16W, CHIP
R364	4822 051 30223	22KΩ ± 5% 1/16W, CHIP
R365	4822 051 30103	10KΩ ± 5% 1/16W, CHIP
R366	4822 051 30103	10KΩ ± 5% 1/16W, CHIP
R371		
〃	4822 117 10154	10MΩ ± 5% 1/16W, CHIP
R374		
R376	4822 051 30103	10KΩ ± 5% 1/16W, CHIP
⚠R381		
〃	4822 111 90967	4.7Ω ± 5% 1/4W, FUSE
⚠R384		
R385	4822 116 83253	1.5KΩ ± 1% 1/10W, CHIP
R386	4822 116 83253	1.5KΩ ± 1% 1/10W, CHIP
R387	4822 116 83255	3.3KΩ ± 1% 1/10W, CHIP
R388	4822 116 83255	3.3KΩ ± 1% 1/10W, CHIP
R389	4822 116 83352	560Ω ± 5% 1/10W, CHIP
R390	4822 116 83352	560Ω ± 5% 1/10W, CHIP
R391	4822 116 83255	3.3KΩ ± 1% 1/10W, CHIP
R392	4822 116 83255	3.3KΩ ± 1% 1/10W, CHIP
R393		
〃	4822 111 91355	13KΩ ± 1% 1/10W, CHIP
R396		
⚠R397	4822 111 90967	4.7Ω ± 5% 1/4W, FUSE
		PA03-SEMICONDUCTORS
D221	4822 130 81395	DIODE, MA714 CHIP
D222	4822 130 81395	DIODE, MA714 CHIP
D301	4822 130 83281	ZENER DIODE, MA8062-M 6.2V CHIP
D302	4822 130 83281	ZENER DIODE, MA8062-M 6.2V CHIP
D303	4822 130 83225	ZENER DIODE, MA8043M CHIP
D304	4822 130 80727	DIODE, MA110 CHIP
D305	4822 130 80727	DIODE, MA110 CHIP
Q201	4822 209 32064	IC, A/D CONVERTER AK5328
Q202	4822 209 31935	IC, TC74HC374AF CHIP
Q203	4822 209 31928	IC, CMOS 74HC00 CHIP
Q204	4822 209 63365	IC, NJM78L05UA CHIP
Q205	4822 209 31903	IC, NJM79L05UA CHIP
Q206	4822 130 60326	DIGITAL TRANSISTOR, DTA144EK
Q221	4822 209 83358	IC, NJM072M CHIP
Q222	4822 209 83358	IC, NJM072M CHIP
Q301	4822 209 30436	IC, DAC SAA7350 BS CHIP
Q302	4822 209 31906	IC, SM5840FS NPC CHIP
Q303		
〃	4822 209 83359	IC, NJM5532M CHIP
Q305		
Q307	4822 130 42842	TRANSISTOR, 2SK372 (GR, BL)
Q308	4822 130 42842	TRANSISTOR, 2SK372 (GR, BL)
Q309	4822 130 61074	TRANSISTOR, 2SA812(M5B,M6B) CHIP
Q311		
〃	4822 130 42842	TRANSISTOR, 2SK372 (GR, BL)
Q314		
Q315	4822 209 31013	IC, TDA1547 DAC7
Q316	4822 130 62549	TRANSISTOR, 2SD1762 (E, F)
Q317	4822 130 62548	TRANSISTOR, 2SB1185 (E, F)
Q318	4822 130 61074	TRANSISTOR, 2SA812(M5B,M6B) CHIP
		PA03-MISCELLANEOUS
J301		PLUG, 6P S6B-XH-A
J302	4822 267 31582	PLUG, 11P S11B-XH-A
J303		PLUG, 6P S6B-XH-A
L201	4822 157 53972	CHOKE COIL 10μH
L203	4822 157 53872	CHOKE COIL 10μH
L205	4822 157 53872	CHOKE COIL 10μH
L301	4822 157 53873	CHOKE COIL 100μH
L302	4822 157 53873	CHOKE COIL 100μH

REF. DESIG.	PART NO.	DESCRIPTION
		PD03-FRONT FLD/KEY SW CIRCUIT BOARD
		PD03-CAPACITORS
CD01	4822 124 22318	ELECT 10µF 16V
CD02	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CV01	4822 124 22318	ELECT 10µF 16V
CV02	4822 124 22318	ELECT 10µF 16V
		PD03-RESISTORS
GD01	4822 111 92126	47KΩ X 10 COMPO.
GD02	4822 111 92125	47KΩ X 9 COMPO.
GD03	4822 111 92124	47KΩ X 8 COMPO.
GD04	4822 111 92123	47KΩ X 7 COMPO.
RH01	4822 100 11967	20KΩ X2 VARIABLE HEAD PHONE VR.
RV01	4822 100 11947	50KΩ X2 VARIABLE REC VR.
RV02	4822 100 11966	100KΩ X2 VARIABLE VALANCE VR.
		PD03-SEMICONDUCTORS
DD04 ~ DD07	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
QD01	4822 209 31937	MICROPROCESSOR, FRONT µPD75238 CHIP
		PD03-MISCELLANEOUS
JD01	4822 265 31036	JACK, CARD FIT TYPE CONNECTOR 25P
SD01	4822 276 20508	PUSH SWITCH
SD03 ~ SD06	4822 276 20508	PUSH SWITCH
SD08	4822 276 20508	PUSH SWITCH
SD09	4822 276 20508	PUSH SWITCH
SD15 ~ SD17	4822 276 20508	PUSH SWITCH
SD19 ~ SD29	4822 276 20508	PUSH SWITCH
SD32	4822 273 10263	ROTARY SWITCH DOLBY SW.
SD33	4822 273 10263	ROTARY SWITCH INPUT SELECTOR
VD01	4822 130 91212	FL DISPLAY UNIT FIP16BM7R
WD01	4822 321 61852	JUMPER LEAD, 25P CARD TYPE
XD01	4822 242 72194	CERAMIC VIB. 4.19MHZ
		PD04-IR-SENSOR/KEY SW CIRCUIT BOARD
		PD04-CAPACITOR
CD03	4822 124 80397	ELECT 47µF 16V
		PD04-SEMICONDUCTORS
DD01	4822 130 80326	L.E.D. LT3D6B RED
QD02	4822 130 81254	PHOTO UNIT, GP1U520X 36.0KHZ
		PD04-MISCELLANEOUS
SD10 ~ SD14	4822 276 20508	PUSH SWITCH
SD31	4822 273 10258	ROTARY SWITCH TIMER

REF. DESIG.	PART NO.	DESCRIPTION
		PG03-MAIN CIRCUIT BOARD
		PG03-CAPACITROS
CA01	4822 124 90352	ELECT 10µF 16V
CA02	4822 122 40589	CERAMIC 0.047µF ± 5% 50V
CA04	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CA05	4822 122 40589	CERAMIC 0.047µF ± 5% 50V
CA06	4822 124 90362	ELECT 22µF 50V
CA07	4822 126 10364	CERAMIC 100PF ± 10%
CA08	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CA09	4822 124 90362	ELECT 22µF 50V
CA12	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CA13	4822 126 10364	CERAMIC 100PF ± 10%
CA17 ~ CA19	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CH01	4822 124 90364	ELECT 220µF 16V
CH02	4822 124 90364	ELECT 220µF 16V
CH03	4822 124 22274	ELECT 4.7µF 50V
CH04	4822 124 22274	ELECT 4.7µF 50V
CL01 ~ CL04	4822 124 90352	ELECT 10µF 16V
CL05	4822 124 90354	ELECT 100µF 16V
CL06	4822 124 90354	ELECT 100µF 16V
CM01	4822 124 90354	ELECT 100µF 16V
CM21	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CM22	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CM51	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CM52	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
CQ01	4822 124 22703	ELECT 0.22µF 50V
CQ02	4822 124 22273	ELECT 0.47µF 50V
CQ04	4822 122 30103	CERAMIC 0.022µF +80% -20% 50V
CQ08	4822 124 90354	ELECT 100µF 16V
CQ10	4822 122 40588	CERAMIC 0.022µF ± 20% 50V
CQ21	4822 126 10364	CERAMIC 100PF ± 10%
CQ22	4822 122 30103	CERAMIC 0.022µF +80% -20% 50V
CQ51	4822 124 90352	ELECT 10µF 16V
CQ52	4822 124 90352	ELECT 10µF 16V
CQ53	4822 124 41539	ELECT 47µF 16V
CQ54	4822 124 41539	ELECT 47µF 16V
CQ55	4822 124 90352	ELECT 10µF 16V
CR01	4822 124 90352	ELECT 10µF 16V
CR02	4822 122 30103	CERAMIC 0.022µF +80% -20% 50V
CR03	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CR04	4822 126 10364	CERAMIC 100PF ± 10%
CR06	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CU01	4822 124 41539	ELECT 47µF 16V
CU02	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CU21	4822 124 41539	ELECT 47µF 16V
CU22	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
CU31	4822 124 41543	ELECT 1µF 50V
CU51	4822 124 90354	ELECT 100µF 16V
CU52	4822 124 22571	ELECT 10µF 50V
CU53	4822 124 90357	ELECT 2.2µF 50V
CU54	4822 124 90354	ELECT 100µF 16V
CU81	4822 124 41539	ELECT 47µF 6V
CU82	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
C031	4822 124 22274	ELECT 4.7µF 50V
C032	4822 124 90352	ELECT 10µF 16V
C033	4822 124 90357	ELECT 2.2µF 50V
C451	4822 124 22277	ELECT 470µF 16V
C601 ~ C604	4822 124 22274	ELECT 4.7µF 50V

REF. DESIG.	PART NO.	DESCRIPTION
C609	4822 124 23445	ELECT 0.56µF 50V
C610	4822 124 23445	ELECT 0.56µF 50V
C613	4822 124 23112	ELECT 10µF 16V
C622	4822 124 90354	ELECT 100µF 16V
C623	4822 124 90354	ELECT 100µF 16V
C635	4822 124 90364	ELECT 220µF 16V
C636	4822 124 90364	ELECT 220µF 16V
C639	4822 126 10408	CERAMIC 220PF ± 10%
C640	4822 126 10408	CERAMIC 220PF ± 10%
C721	4822 124 22274	ELECT 4.7µF 50V
C722	4822 124 22274	ELECT 4.7µF 50V
C726	4822 124 41539	ELECT 47µF 16V
C727	4822 124 41539	ELECT 47µF 16V
C728	4822 124 90364	ELECT 220µF 16V
C729	4822 124 90364	ELECT 220µF 16V
C731	4822 124 90354	ELECT 100µF 16V
C732	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C733	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C751	4822 126 10364	CERAMIC 100PF ± 10%
C752	4822 126 10364	CERAMIC 100PF ± 10%
C753	4822 124 22274	ELECT 4.7µF 50V
C754	4822 124 22274	ELECT 4.7µF 50V
C756	4822 124 90364	ELECT 220µF 16V
C757	4822 124 90364	ELECT 220µF 16V
C761 ↓ C764	4822 126 10408	CERAMIC 220PF ± 10%
C801	4822 124 23518	ELECT 4700µF 35V
C802	4822 124 23518	ELECT 2200µF 35V
C809	4822 124 22571	ELECT 10µF 50V
C810	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C812	4822 124 90352	ELECT 10µF 16V
C813	4822 124 90352	ELECT 10µF 16V
C841	4822 124 90364	ELECT 220µF 16V
C842	4822 124 90364	ELECT 220µF 16V
C881	4822 124 22277	ELECT 470µF 16V
		PG03-RESISTORS
RA13	4822 050 23909	39Ω ± 5% 1/4W
RA15	4822 050 23909	39Ω ± 5% 1/4W
⚠ RH02	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ RH04	4822 115 90166	10Ω ± 2% 1/4W, FUSE
RL05	4822 100 20681	2.2KΩ TRIMMING , METER (L)
RL06	4822 100 20681	2.2KΩ TRIMMING , METER (R)
⚠ RL09	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ RL10	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ RM01	4822 053 10228	2.2Ω 1W
⚠ RM23	4822 113 90107	4.7Ω ± 5% 1/4W, FUSE
⚠ RM57	4822 113 90107	4.7Ω ± 5% 1/4W, FUSE
RM88	4822 116 60355	33Ω ± 5% 1W
⚠ RQ17	4822 053 10151	150Ω 1W
⚠ RQ61	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ RQ62	4822 115 90166	10Ω ± 2% 1/4W, FUSE
RR01	4822 050 21021	100Ω ± 5% 1/4W
R633	4822 100 11351	10KΩ TRIMMING
R634	4822 100 11351	10KΩ TRIMMING
R643	4822 100 11372	47KΩ TRIMMING
R644	4822 100 11372	47KΩ TRIMMING
R645	4822 100 11641	470KΩ TRIMMING
R646	4822 100 11641	470KΩ TRIMMING
⚠ R705	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ R728	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ R729	4822 115 90166	10Ω ± 2% 1/4W, FUSE
R731	4822 100 11948	20KΩ VARIABLE MOTOR DRIVE
⚠ R732	4822 111 90967	4.7Ω ± 2% 1/4W, FUSE
⚠ R751	4822 115 90166	10Ω ± 2% 1/4W, FUSE

REF. DESIG.	PART NO.	DESCRIPTION
⚠ R752	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ R801	4822 116 21086	1Ω ± 5% 0.5W, FUSE
⚠ R802	4822 116 21088	2.2Ω ± 5% 0.5W, FUSE
⚠ R803 ↓ ⚠ R805	4822 116 21086	1Ω ± 5% 0.5W, FUSE
⚠ R806	4822 116 60307	1Ω ± 5% 1/4W, FUSE
⚠ R810	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ R813	4822 115 90166	10Ω ± 2% 1/4W, FUSE
⚠ R814	4822 115 90166	10Ω ± 2% 1/4W, FUSE
		PG03-SEMICONDUCTORS
DH01	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DH02	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DM01	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DM21	4822 130 80132	ZENER DIODE, 3.9V
DM22	4822 130 80273	ZENER DIODE, 8.2V
DM23	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DM51	4822 130 80273	ZENER DIODE, 8.2V
DM52	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DR01	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DU11	4822 130 80132	ZENER DIODE, 3.9V
DU51	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DU53	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
DU61	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
⚠ DU62	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
D641	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
⚠ D701	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
D702	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
D703	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
D817	4822 130 80317	ZENER DIODE, 5.1V
D818	4822 130 80273	ZENER DIODE, 8.2V
D819	4822 130 80273	ZENER DIODE, 8.2V
⚠ D822	4822 130 80839	DIODE, 1S5688G VRM=400V IO=1A
D823	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
D824	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
⚠ D828	4822 130 80839	DIODE, S5688G VRM-400V IO-1A
⚠ D841	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
QA01	4822 209 63182	IC, 74HCU04
QA02	4822 130 60586	DIGITAL TRANSISTOR, DTC114ES
QA03	4822 130 42715	TRANSISTOR, 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QA04	4822 130 42298	TRANSISTOR, 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QH02	4822 209 61187	IC, BA15218
QH05 ↓ QH08	4822 130 61723	DIGITAL TRANSISTOR, DTC323TS 2.2K
QL01	4822 209 82513	IC, METER AC/DC AMP BA6138
QL02	4822 209 61187	IC, BA15218
QM01	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QM02	4822 130 61189	DIGITAL TRANSISTOR, DTA114TS

REF. DESIG.	PART NO.	DESCRIPTION
QM03	4822 130 61725	TRANSISTOR, 2SD2010
QM04	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QM21	4822 209 61188	IC, BA6219
QM22	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QM51	4822 209 30193	IC, LB1641
QM81		
↓	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QM84		
QM85	4822 130 60173	TRANSISTOR, 2SC2060(Q,R)
QM86	4822 130 60173	TRANSISTOR, 2SC2060(Q,R)
QM87	4822 130 63188	TRANSISTOR, 2SB1425(E, U)
QQ01	4822 209 83706	IC, BA335PK
QQ03		
↓	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QQ06		
QQ21	4822 130 42298	TRANSISTOR, 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QQ51	4822 209 61187	IC, BA15218
QQ52	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QR01	4822 130 42715	TRANSISTOR, 2SA608SP, 2SA1048, 2SA1309, 2SA933S
QR02	4822 130 42298	TRANSISTOR, 2SC536SP, 2SC2458, 2SC3311A, 2SC1740S
QR51	4822 130 42594	DIGITAL TRANSISTOR, DTC144ES
QR52	4822 130 42594	DIGITAL TRANSISTOR, DTC144ES
QU01	4822 209 31936	MICROPROCESSOR, MAIN µPD75P518GF CHIP
QU02	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QU03		
↓	4822 130 61227	DIGITAL TRANSISTOR, DTA114ES
QU05		
QU11	4822 130 61227	DIGITAL TRANSISTOR, DTA114ES
QU12		
↓	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QU14		
QU16	4822 130 61189	DIGITAL TRANSISTOR, DTA114TS
QU17	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QU18	4822 130 61227	DIGITAL TRANSISTOR, DTA114ES
QU19	4822 130 42298	TRANSISTOR, 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QU21	4822 209 31932	IC, 74HC125AP
QU22	4822 130 60588	DIGITAL TRANSISTOR, DTC114ES
QU33	4822 130 42682	DIGITAL TRANSISTOR, DTA144ES
QU41	4822 130 42298	TRANSISTOR, 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
QU52	4822 130 61227	DIGITAL TRANSISTOR, DTA114ES
QU53	4822 130 60588	DIGITAL TRANSISTOR, DTC114ES
QU54	4822 130 42682	DIGITAL TRANSISTOR, DTA144ES
QU55	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QU56	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QU57	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
QU61	4822 130 60588	DIGITAL TRANSISTOR, DTC114ES
QU62	4822 130 61227	DIGITAL TRANSISTOR, DTA114ES
QU63	4822 130 61725	TRANSISTOR, 2SD2010
QU64	4822 130 60588	DIGITAL TRANSISTOR, DTC114ES
QU65	4822 130 61227	DIGITAL TRANSISTOR, DTA114ES
QU81	4822 209 31923	IC, EEPROM BR93LC46
Q031	4822 209 31924	IC, TA75358CP
Q601	4822 209 62251	IC, DOLBYB/C NR CXA1330
Q602	4822 209 73064	IC, NJM-2068-DD
Q611	4822 130 61189	DIGITAL TRANSISTOR, DTA114TS
Q612	4822 130 60588	DIGITAL TRANSISTOR, DTC114ES
Q613	4822 130 61227	DIGITAL TRANSISTOR, DTA114ES
Q641	4822 130 61723	DIGITAL TRANSISTOR, DTC323TS 2.2K
Q642	4822 130 61723	DIGITAL TRANSISTOR, DTC323TS 2.2K
Q671	4822 130 60588	DIGITAL TRANSISTOR, DTC114ES
Q672	4822 130 60588	DIGITAL TRANSISTOR, DTC114ES

REF. DESIG.	PART NO.	DESCRIPTION
Q701	4822 130 63189	TRANSISTOR, 2SD2159 (U, V)
Q702	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
Q720	4822 209 61187	IC, BA15218
Q731	4822 209 73287	IC, LB1630
Q751	4822 209 73064	IC, NJM-2068-DD
Q761		
↓	4822 130 61892	TRANSISTOR, 2SD2144S (U, V)
Q768		
Q806	4822 130 63189	TRANSISTOR, 2SD2159 (U, V)
Q807	4822 130 63188	TRANSISTOR, 2SB1425 (E, U)
Q809	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
Q810	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
⚠ Q811	4822 209 31925	IC, PQ05RA11 1A,5V
⚠ Q812	4822 209 62941	IC, NJM78M08FA
Q843	4822 130 61189	DIGITAL TRANSISTOR, DTC114TS
		PG03-MISCELLANEOUS
JA01	4822 265 31042	OPTICAL CONNECTOR, PLT102, OUT
JA02	4822 265 31043	OPTICAL CONNECTOR TORX176, IN
JA03	4822 265 31044	RCA JACK, 2P COAX IN/OUT
JR01	4822 267 41009	RCA PIN JACK, 2P ORG
JU02	4822 265 51347	JACK, 25P CARD TYPE
J311	4822 265 31034	JACK, 6P
J312	4822 265 31035	JACK, 11P
J313	4822 265 31034	JACK, 6P
J421	4822 265 31039	JACK, 50P (25X2)
J740	4822 265 31045	RCA JACK W/R GOLD 2P
J741	4822 265 31045	RCA JACK W/R GOLD 2P
J742	4822 265 31045	RCA JACK W/R GOLD 2P
LA01	4822 142 60388	PULSE TRANSFORMER
LA02	4822 157 53813	CHOKE COIL, 10µH
LA03	4822 157 53585	CHOKE COIL, 47µH
L701	4822 280 20183	RELAY, SZ-2103 12V
L711		
↓	4822 526 10543	FERRITE CORE
L718		
L719	4822 526 10584	FERRITE CORE
L721	4822 526 10584	FERRITE CORE
SR01	4822 277 21559	SLIDE SWITCH REMOTE SELECT
XU01	4822 242 72194	CERAMIC VIBRATOR, 4.19MHZ
		PM03-TRAY WIRE CONNECTIVE/ SERVO CIRCUIT BOARD
		PM03-CAPACITORS
C001	4822 124 22703	ELECT 0.22µF 50V
C002	4822 124 40721	ELECT 2.2µF 50V
C004	4822 126 12496	CERAMIC 0.01µF +80% -20% 50V
C005	4822 124 41537	ELECT 220µF 6.3V
C006	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
C007	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
		PM03-RESISTORS
RS02	4822 100 11235	4.7KΩ TRIMMING, SIDE A
RS03	4822 111 92128	130Ω THERMISTOR
RS08	4822 100 11452	470Ω TRIMMING, SIDE B
R018	4822 116 82752	10KΩ ± 1% 1/6W
R019	4822 116 82752	10KΩ ± 1% 1/6W
R031	4822 050 21501	150Ω ± 5% 1/4W
R036	4822 100 20539	22KΩ TRIMMING, Q. SENSOR
		PM03-SEMICONDUCTORS
D001	4822 130 33305	DIODE, 1SS176,MA165,1SS254 30V 0.1A
D002	4822 130 81424	ZENER DIODE, BZV86-2V0

REF. DESIG.	PART NO.	DESCRIPTION
D003	4822 130 81424	ZENER DIODE, BZV86-2V0
QS01	4822 209 63382	IC, 74HC4066
QS02	4822 130 61188	DIGITAL TRANSISTOR, DTC144TS
QS03	4822 130 42594	DIGITAL TRANSISTOR, DTC144ES
Q001	4822 209 31907	IC, NJM2902N
Q011	4822 130 42298	TRANSISTOR, 2SC536SP, 2SC2458, 2SC3311, 2SC1740S
		PP03-POWER SUPPLY CIRCUIT BOARD
		PP03-CAPACITORS
B822	4822 126 11235	COMP. 0.047µF +6.8Ω ± 20%
C826	4822 122 30103	CERAMIC 0.022µF +80% -20% 50V
C827	4822 122 30103	CERAMIC 0.022µF +80% -20% 50V
⚠C851		
↑	4822 122 33276	CERAMIC 0.01µF ± 20% 400V
⚠C853		
⚠C861	4822 122 33276	CERAMIC 0.01µF ± 20% 400V
⚠C862	4822 122 33276	CERAMIC 0.01µF ± 20% 400V
		PP03-SEMICONDUCTORS
⚠DU54	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠DU55	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠D801		
↑	4822 130 32506	DIODE, RL103E(RECTRON)/DSF10C
⚠D812		
⚠D815	4822 130 80839	DIODE, S5688G VRM= 400V IO=1A
⚠D816	4822 130 80839	DIODE, S5688G VRM= 400V IO=1A
⚠D820	4822 130 32506	DIODE, RL103E(RECTRON)/DSF10C
⚠D821	4822 130 32506	DIODE, RL103E(RECTRON)/DSF10C
		PP03-MISCELLANEOUS
⚠F801	4822 253 30414	FUSE, 630MA 250V BS
⚠J093	4822 267 31416	JACK, AC INLET
⚠L801	4822 146 21699	POWER TRANSFORMER [/01]
	4822 146 21697	POWER TRANSF. [/02/05/07]
⚠L802	4822 242 72523	EMI NOIZE FILTER
⚠S851	4822 276 13364	PUSH SWITCH POWER SW TV-3
		PP63-POWER TRANSFORMER TERMINAL CIRCUIT BOARD
		PP63-CAPACITORS
C824	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C825	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C830		CERAMIC 0.022µF ± 20% 50V
		PS03-DC POWER SUPPLY CIRCUIT BOARD
		PS03-CAPACITORS
C871	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C872	4822 124 22238	ELECT 100µF 25V
C873	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C874	4822 124 22238	ELECT 100µF 25V
C875	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C876	4822 124 41537	ELECT 220µF 6.3V
C877	4822 122 40589	CERAMIC 0.047µF ± 20% 50V
C878	4822 124 41537	ELECT 220µF 6.3V

REF. DESIG.	PART NO.	DESCRIPTION
		PS03-SEMICONDUCTORS
⚠D871		
↑	4822 130 80839	DIODE, S5688G VRM=400V IO=1A
⚠D873		
⚠Q871	4822 209 31926	IC, PO12RA1 1A+12V
⚠Q872	4822 209 73954	IC, NJM7912FA 1A-12V
⚠Q873	4822 209 31925	IC, PO05RA11 1A,5V
⚠Q874	4822 209 31927	IC, PO05RR1 1A,5V
		PW02- HEAD PHONE CIRCUIT BOARD
		PW02-CAPACITORS
CH31	4822 122 40586	CERAMIC 0.01µF ± 20%
CH32	4822 122 40586	CERAMIC 0.01µF ± 20%
CH33	4822 122 40617	CERAMIC 0.1µF +80% -20% 50V
		PW02-MISCELLANEOUS
JH02	4822 267 31611	JACK, HEAD PHONE
LH31		
↑	4822 526 10584	FERRITE CORE
LH33		
		PW03-READ/WRITE CIRCUIT BOARD
		PW03-CAPACITORS
C101	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C102	4822 122 32672	TANTLUM 1µF 16V CHIP
C103	4822 124 11334	TANTLUM 4.7µF 16V CHIP
C104		
↑	4822 126 11678	CERAMIC 1µF +80% -20% CHIP
C111		
C112	4822 124 11074	TANTLUM 10µF 16V CHIP
C113	4822 122 32672	TANTLUM 1µF 16V CHIP
C114	4822 122 32672	TANTLUM 1µF 16V CHIP
C115	4822 122 32677	TANTLUM 2.2µF 6.3V CHIP
C116	4822 122 32677	TANTLUM 2.2µF 6.3V CHIP
C117	4822 126 12501	CERAMIC 1800PF ± 10% CHIP
C118	4822 126 12501	CERAMIC 1800PF ± 10% CHIP
C119		
↑	4822 124 11074	TANTLUM 10µF 16V CHIP
C121		
C122		
↑	4822 125 11565	CERAMIC 0.01µF ± 10% CHIP
C132		
C133	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C134	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C135	4822 124 11335	TANTLUM 63µF 10V CHIP
C137	4822 124 11335	TANTLUM 68µF 10V CHIP
C138	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C140	4822 124 11335	TANTLUM 63µF 10V CHIP
C141	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C143	4822 124 11334	TANTLUM 4.7µF 16V CHIP
C144	4822 126 11678	CERAMIC 1µF +80% -20% CHIP
C145	4822 126 11678	CERAMIC 1µF +80% -20% CHIP
C150	4822 124 11335	TANTLUM 68µF 10V CHIP
C151	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C152	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C157		
↑	4822 126 11683	CERAMIC 3300PF ± 10% CHIP
C165		
C181		
↑	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C185		
C190	4822 126 12503	CERAMIC 0.033µF +80% -20% CHIP
C191	4822 126 12503	CERAMIC 0.033µF +80% -20% CHIP
C192	4822 126 11681	CERAMIC 1000PF ± 10% CHIP

REF. DESIG.	PART NO.	DESCRIPTION
C193	4822 126 12498	CERAMIC 39PF ±5% CHIP
C194	4822 126 11566	CERAMIC 2200PF ±10% CHIP
C195	4822 126 11566	CERAMIC 2200PF ±10% CHIP
C196	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
		PW03-RESISTORS
R101	4822 100 11943	4.7KΩ ±25% 1/10W, TRIMMING, A BIAS CHIP
R102	4822 100 11943	4.7KΩ ±25% 1/10W, TRIMMING, B BIAS CHIP
R103	4822 051 30473	47KΩ ±5% 1/16W, CHIP
R104	4822 051 30473	47KΩ ±5% 1/16W, CHIP
R105	4822 051 30303	30KΩ ±5% 1/16W, CHIP
R106	4822 051 30303	30KΩ ±5% 1/16W, CHIP
R107	4822 051 30154	150KΩ ±5% 1/16W, CHIP
R108	4822 051 30154	150KΩ ±5% 1/16W, CHIP
R109	4822 100 11943	4.7KΩ ±25% 1/10W, TRIMMING, A BIAS CHIP
R110	4822 100 11943	4.7KΩ ±25% 1/10W, TRIMMING, B BIAS CHIP
R111		
!	4822 051 30109	10Ω ±5% 1/16W, CHIP
R114		
R115	4822 051 30561	560Ω ±5% 1/16W, CHIP
R116	4822 051 30561	560Ω ±5% 1/16W, CHIP
R120	4822 116 82487	0Ω , CHIP
R121	4822 051 30682	6.8KΩ ±5% 1/16W, CHIP
R122	4822 051 30683	68KΩ ±5% 1/16W, CHIP
R125	4822 051 30104	100KΩ ±5% 1/16W, CHIP
R127	4822 051 30102	1KΩ ±5% 1/16W, CHIP
R128	4822 051 30102	1KΩ ±5% 1/16W, CHIP
R129	4822 051 30479	47Ω ±5% 1/16W, CHIP
R130	4822 051 30471	470Ω ±5% 1/16W, CHIP
R131	4822 051 30331	330Ω ±5% 1/16W, CHIP
R132	4822 051 30561	560Ω ±5% 1/16W, CHIP
R133	4822 116 83221	8.2KΩ ±5% 1/16W, CHIP
R134	4822 116 83208	12KΩ ±5% 1/16W, CHIP
R135	4822 100 11604	1KΩ ±25% 1/10W, TRIMMING, D OUT CHIP
R136	4822 116 83214	39KΩ ±5% 1/16W, CHIP
R137		
!	4822 116 83352	560Ω ±5% 1/10W, CHIP
R145		
R146	4822 051 30561	560Ω ±5% 1/16W, CHIP
R151	4822 111 92129	22Ω ±1% 1/4W, CHIP
R155	4822 111 92131	2.2Ω ±5% 1/4W, CHIP
R156	4822 111 92133	180Ω ±5% 1/4W, CHIP
R158		
!	4822 051 30229	22Ω ±5% 1/16W, CHIP
R166	4822 051 30229	22Ω ±5% 1/16W, CHIP
R167	4822 100 11941	100Ω TRIMMING, I REC, CHIP
R171	4822 051 30472	4.7KΩ ±5% 1/16W, CHIP
R172	4822 051 30472	4.7KΩ ±5% 1/16W, CHIP
R180	4822 051 30102	1KΩ ±5% 1/16W, CHIP
R181	4822 051 30331	330Ω ±5% 1/16W, CHIP
R182	4822 051 30109	10Ω ±5% 1/16W, CHIP
R183	4822 116 83221	8.2KΩ ±5% 1/16W, CHIP
R184	4822 111 91077	56Ω ±5% 1/10W, CHIP
R185	4822 116 83211	1.8KΩ ±5% 1/16W, CHIP
R186	4822 116 83218	68Ω ±5% 1/16W, CHIP
R187	4822 111 92127	40Ω THERMISTOR, CHIP
R192	4822 116 83211	1.8KΩ ±5% 1/16W, CHIP
R193	4822 051 30152	1.5KΩ ±5% 1/16W, CHIP
R194	4822 051 30561	560Ω ±5% 1/16W, CHIP
R195	4822 051 30101	100Ω ±5% 1/16W, CHIP
R196		27Ω ±5% 1/16W, CHIP
R197	4822 051 30399	39Ω ±5% 1/16W, CHIP
R198	4822 051 30399	39Ω ±5% 1/16W, CHIP

REF. DESIG.	PART NO.	DESCRIPTION
		PW03-SEMICONDUCTORS
Q101	4822 209 31918	IC, READ AMP TDA1317 CHIP
Q102	4822 130 43398	TRANSISTOR, 2SC2712(G), CHIP
Q103	4822 130 43398	TRANSISTOR, 2SC2712(G), CHIP
Q104	4822 130 43954	TRANSISTOR, 2SD999 (CL,CK), CHIP
Q105	4822 130 42733	TRANSISTOR, 2SA1162-G, CHIP
Q106	4822 130 43398	TRANSISTOR, 2SC2712(G), CHIP
Q151	4822 209 31919	IC,WRITE AMP TDA1316T/N-T CHIP
Q153	4822 130 62522	DIGITAL TRANSISTOR, UN2217 22K CHIP
Q180	4822 130 43398	TRANSISTOR, 2SC2712(G), CHIP
Q181	4822 209 62503	IC, 74HC4053 CHIP
Q182	4822 209 31934	IC, 74HC175 CHIP
Q183	4822 209 31928	IC, CMOS 74HC00 CHIP
Q184	4822 209 31933	IC, 74HC163 CHIP
Q185	4822 209 63341	IC, 74HC02 CHIP
Q190	4822 130 43398	TRANSISTOR, 2SC2712(G), CHIP
		PW03-MISCELLANEOUS
J101	4822 265 31041	JACK, 30P GOLD
J103	4822 265 31037	JACK, 18P CFM
J111	4822 116 83251	CHECKER CHIP
J112	4822 116 83251	CHECKER CHIP
J121	4822 116 83251	CHECKER CHIP
J122	4822 116 83251	CHECKER CHIP
J151	4822 116 83251	CHECKER CHIP
J152	4822 116 83251	CHECKER CHIP
L101	4822 157 70268	CHOKE COIL 15µH ±20% 5MA CHIP
L102	4822 157 70268	CHOKE COIL 15µH ±20% 5MA CHIP
W103	4822 321 61806	JUMPER LEAD, 18P CARD TYPE
		PZ03-DIGITAL CIRCUIT BOARD
		PZ03-CAPACITORS
C401		
!	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C406		
C409	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C410	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C411	4822 126 11565	CERAMIC 0.01µF ±10% CHIP
C412	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C418	4822 126 11668	CERAMIC 220PF ±5% 50V CHIP
C423	4822 124 11074	TANTLUM 10µF 16V CHIP
C424	4822 124 11226	TANTLUM 22µF 6.3V CHIP
C425	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C426	4822 124 11332	TANTLUM 2.2µF 50V CHIP
C427	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C428	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C429	4822 124 11074	TANTLUM 10µF 16V CHIP
C430	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C431	4822 124 11074	TANTLUM 10µF 16V CHIP
C432	4822 122 33777	CERAMIC 47PF ±5% 50V CHIP
C433	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C434	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C440	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C441	4822 126 12504	CERAMIC 0.039µF +80% -20% CHIP
C442	4822 126 12499	CERAMIC 0.47µF +80% -20% CHIP
C443		
!	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C446		
C447	4822 124 11074	TANTLUM 10µF 16V CHIP
C448	4822 126 11562	CERAMIC 100PF ±5% 50V CHIP
C449	4822 126 11687	CERAMIC 0.1µF +80% -20% CHIP
C450	4822 124 11074	TANTLUM 10µF 16V CHIP
C451	4822 122 33744	CERAMIC 100PF ±5% 50V CHIP
C453	4822 122 33744	CERAMIC 100PF ±5% 50V CHIP
C457	4822 122 33753	CERAMIC 150PF ±5% 50V CHIP

REF. DESIG.	PART NO.	DESCRIPTION
C471 ~ C474	4822 126 12497	CERAMIC 7PF ±0.5PF 50V CHIP
		PZ03-RESISTORS
RJ03	4822 116 82487	0Ω ± 5% 1/16W, CHIP
RJ04	4822 116 82487	0Ω ± 5% 1/16W, CHIP
R402	4822 051 30104	100KΩ ± 5% 1/16W, CHIP
R411	4822 051 30222	2.2KΩ ± 5% 1/16W, CHIP
R413	4822 116 82487	0Ω ± 5% 1/16W, CHIP
R417	4822 116 82487	0Ω ± 5% 1/16W, CHIP
R418	4822 116 83207	1.2KΩ ± 5% 1/16W, CHIP
R423	4822 051 30272	2.7KΩ ± 5% 1/16W, CHIP
R428	4822 116 83208	12KΩ ± 5% 1/16W, CHIP
R429	4822 116 92132	120Ω ± 5% 1/4W, CHIP
R430	4822 111 92133	180Ω ± 5% 1/4W, CHIP
R432	4822 051 30221	220Ω ± 5% 1/16W, CHIP
R434	4822 051 30473	47KΩ ± 5% 1/16W, CHIP
R435	4822 051 30473	47KΩ ± 5% 1/16W, CHIP
R441	4822 051 30103	10KΩ ± 5% 1/16W, CHIP
R442	4822 051 30104	100KΩ ± 5% 1/16W, CHIP
R443	4822 051 30222	2.2KΩ ± 5% 1/16W, CHIP
R444	4822 051 30222	2.2KΩ ± 5% 1/16W, CHIP
R445	4822 116 83207	1.2KΩ ± 5% 1/16W, CHIP
R447	4822 051 30104	100KΩ ± 5% 1/16W, CHIP
R448	4822 051 30223	22KΩ ± 5% 1/16W, CHIP
R449	4822 051 30223	22KΩ ± 5% 1/16W, CHIP
R450	4822 051 30103	10KΩ ± 5% 1/16W, CHIP
R451	4822 051 30303	30KΩ ± 5% 1/16W, CHIP
R452	4822 051 30303	30KΩ ± 5% 1/16W, CHIP
R453	4822 051 30472	4.7KΩ ± 5% 1/16W, CHIP
R454	4822 051 30682	6.8KΩ ± 5% 1/16W, CHIP
R455	4822 100 11942	10KΩ TRIMMING, CHIP
R456	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R457	4822 051 30331	330Ω ± 5% 1/16W, CHIP
R460 ~ R463	4822 051 30472	4.7KΩ ± 5% 1/16W, CHIP
R471	4822 051 30105	1MΩ ± 5% 1/16W, CHIP
R472	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R473	4822 051 30105	1MΩ ± 5% 1/16W, CHIP
R474	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R479 ~ R484	4822 051 30339	33Ω ± 5% 1/16W, CHIP
R485	4822 051 30102	1KΩ ± 5% 1/16W, CHIP
R487 ~ R490	4822 051 30339	33Ω ± 5% 1/16W, CHIP
R491 ~ R498	4822 051 30472	4.7KΩ ± 5% 1/16W, CHIP
R499	4822 051 30339	33Ω ± 5% 1/16W, CHIP
		PZ03-SEMICONDUCTORS
D421	4822 130 83231	ZENER DIODE, 3.6V 02CZ3.6X CHIP
Q401	4822 209 31912	IC, SBF-L SAA2001 CHIP
Q402	4822 209 31912	IC, SBF-R SAA2001 CHIP
Q403	4822 209 31913	IC, SBC SAA2021 CHIP
Q404	4822 209 31914	IC, DDSP SAA2041 CHIP
Q405	4822 209 31915	IC, ERCO SAA2031 CHIP
Q406	4822 209 31921	IC, 64K BITX4 D-RAM MB81464 CHIP
Q409	4822 209 72624	IC, TC4538BF, µPC4538BF CHIP
Q410	4822 209 31916	IC, ADAS SAA2011 CHIP
Q411	4822 130 62522	DIGITAL TRANSISTOR, UN2217 22K CHIP
Q412	4822 209 31929	IC, 74HC32 CHIP
Q421	4822 130 43398	TRANSISTOR, 2SC2712(G), CHIP
Q422	4822 130 42733	TRANSISTOR, 2SA1162(G), CHIP

REF. DESIG.	PART NO.	DESCRIPTION
Q423	4822 209 31917	IC, DEQ2 SAA2051 CHIP
Q441	4822 209 31922	IC, DAI M51581FD CHIP
Q442	4822 209 61534	IC, CMOS 74HCU04 CHIP
Q443	4822 209 31909	IC, NE5230D CHIP
Q444	4822 209 31931	IC, 74HC4046 CHIP
		PZ03-MISCELLANEOUS
J408	4822 265 31038	JACK
J409	4822 116 83251	CHECKER CHIP (RD-MUX)
J441	4822 265 31039	CHECKER CHIP (VCO-CONTROL)
J442	4822 116 83251	CHECKER CHIP (RXCK)
L421	4822 157 53873	CHOKE COIL 100µH ±10% 40MA CHIP
L441	4822 157 53873	CHOKE COIL 100µH ±10% 40MA CHIP
X401	4822 242 81345	CRYSTAL, 24.526MHZ CHIP
X402	4822 242 81344	CRYSTAL, 22.5792MHZ CHIP

NOTE ON SAFETY:

Symbol ⚠ Fire or electrical shock hazard. Only original parts should be used to replace any part marked with symbol ⚠. Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.